DOCUMENT RESUME

ED 423 371 CE 076 798

AUTHOR	Smith, Chris Selby, Ed.
TITLE	Research and VET Decision-Making: February 1997 Symposium (Melbourne, Australia, February 19-20, 1997).
INSTITUTION	Monash Univ., Clayton, Victoria (Australia). Centre for the Economics of Education and Training.
SPONS AGENCY	Australian National Training Authority, Brisbane.
ISBN	ISBN-1-876496-00-2
PUB DATE	1998-00-00
NOTE	173p.
AVAILABLE FROM	Centre for the Economics of Education and Training, Faculty of Education, Monash University, Clayton, Victoria, 3168, Australia.
PUB TYPE	Collected Works - Proceedings (021) -- Reports - Research (143)
EDRS PRICE	MF01/PC07 Plus Postage.
DESCRIPTORS	Adult Education; Community Education; Conferences; *Decision Making; *Educational Policy; Educational Practices; *Educational Research; Foreign Countries; Government School Relationship; Policy Formation; Postsecondary Education; *Research Utilization; School Business Relationship; School Community Relationship; Secondary Education; *Theory Practice Relationship; *Vocational Education
IDENTIFIERS	*Australia; TAFE (Australia)

ABSTRACT

This document contains the speaking notes, spoken comments, and prepared papers of the participants in a 1997 symposium on utilization of vocational education and training (VET) research in VET decision making in Australia. The document begins with the "Introduction" (Chris Selby Smith). The next six sections contain the speaking notes and/or comments of the individuals who spoke at the symposium's first six sessions. The session titles and speakers were as follows: "The Users of Research: The Use of Research at State/Territory and National Levels--VET Policy and Planning" (Nigel Smart, Perce Butterworth, Gregor Ramsey, Kareena Arthy, Robert Bluer); "The Users of Research: Use of Research by VET Providers for Improved Practice and Performance, and Policy and Planning at Provider Level" (Virginia Simmons, Brian Jones, Geoff Creek, Rod McDonald and Geof Hawke, Brian Conroy); "Research and Researchers' Perspectives: From the Viewpoint of VET Research Institutions" (John Owen, Chris Robinson, Geof Hawke, Gerald Burke, John Ainley); "Research and Researchers' Perspectives: From the Viewpoint of Other Sources of Research" (Robert Bluer, Don Anderson, Barry McGaw, Bruce Chapman, Terri Seddon, Fran Thorn); "Community Relations: Researchers' Contribution to Facilitating Interactions between Wider Economic, Political and Social Systems and VET" (David Corbett, Steve Balzary, Rex Hewett, Jane Carnegie, Shirley Randell); and "Research, Decision Making and Action in Other Functional Areas of Government, and Internationally" (Rod McDonald, Don Anderson, Chris Selby Smith, Peter Winsley, Russell Rumberger). Sections 1-6 also include summaries of other matters raised in the discussion period. The final plenary discussion is summarized in section 7. Several presentations also include substantial bibliographies. Appended are the following: background paper on VET research

***** ED423371 Has Multi-page SFR---Level=1 *****
utilization that was circulated to the symposium participants; symposium program; and symposium findings. (MN)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 423 371

RESEARCH AND VET DECISION-MAKING: FEBRUARY 1997 SYMPOSIUM

■

Edited by

Chris Selby Smith

■

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY
T Bartlett for C Selby Smith
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

CE056798

CEET

MONASH UNIVERSITY • ACER

CENTRE FOR THE ECONOMICS OF EDUCATION AND TRAINING

RESEARCH AND VET DECISION-MAKING: FEBRUARY 1997 SYMPOSIUM

■

Edited by

Chris Selby Smith

■

MONASH UNIVERSITY - ACER

CENTRE FOR THE ECONOMICS OF EDUCATION AND TRAINING

ISBN 1 876496 00 2

Published by
Monash University-ACER *Centre for the Economics of Education and Training* (CEET)
1998

Copies available from
CEET, Faculty of Education, Monash University, Clayton, Australia 3168
Phone 03 9905 9157 Fax 03 9905 9184
email: val.newson@education.monash.edu.au

This work is copyright. Apart from any use as permitted under the *Copyright Act 1968*, no part may be reproduced by any process without written permission from the Executive Director of the Monash University-ACER Centre for the Economics of Education and Training, c/o Faculty of Education, Monash University, Clayton, Victoria, 3168, Australia.

This project has been assisted by the Commonwealth Government through the National Research Advisory Council of the Australian National Training Authority.

Table of Contents

		Page
Table of Contents		(iii)
Editor's Introduction		(v)
Introduction	Chris Selby Smith	1
Session 1:	**The Users of Research: The Use of Research at State / Territory and National Levels - VET Policy and Planning.**	
	Nigel Smart	6
	Perce Butterworth	8
	Gregor Ramsey	11
	Kareena Arthy	16
	Robert Bluer	18
	Other Matters Raised in the Discussion Period	21
Session 2:	**The Users of Research: Use of Research by VET Providers for Improved Practice and Performance, and Policy and Planning at Provider Level.**	
	Virginia Simmons	22
	Brian Jones	23
	Geoff Creek	29
	Rod McDonald and Geof Hawke	33
	Brian Conroy	47
	Other Matters Raised in the Discussion Period	49
Session 3:	**Research and Researchers' Perspectives: From the Viewpoint of VET Research Institutions.**	
	John Owen	50
	Chris Robinson	52
	Geof Hawke	55
	Gerald Burke	56
	John Ainley	58
	Other Matters Raised in the Discussion Period	60
Session 4:	**Research and Researchers' Perspectives: From the Viewpoint of Other Sources of Research.**	
	Robert Bluer	61
	Don Anderson	62
	Barry McGaw	63
	Bruce Chapman	80
	Terri Seddon	82
	Fran Thorn	86
	Other Matters Raised in the Discussion Period	87

Session 5:	**Community Relations: Researchers' Contribution to Facilitating Interactions Between Wider Economic, Political and Societal Systems and VET.**	
	David Corbett	88
	Steve Balzary	89
	Rex Hewett	91
	Jane Carnegie	96
	Shirley Randell	98
	Other Matters Raised in the Discussion Period	111
Session 6:	**Research, Decision Making and Action in Other Functional Areas of Government , and Internationally.**	
	Rod McDonald	112
	Don Anderson	113
	Chris Selby Smith	118
	Peter Winsley	127
	Russell Rumberger	143
	Other Matters Raised in the Discussion Period	145
Session 7:	**Final Plenary Discussion.**	147
Appendix 1:	**Background Paper**	150
Appendix 2:	**Symposium Program, 19 - 20 February 1997, Melbourne**	158
Appendix 3:	**Symposium Findings**	161

Editor's Introduction

Research and VET Decision-Making: February 1997 Symposium

In April 1996, the Australian National Training Authority Research Advisory Council (ANTA RAC) advertised that it would fund a research project to 'review the evidence for and where possible evaluate the extent of influence of research in vocational education and training. The Council stated that it was particularly interested in the impact of research in three areas: policy and planning; practice and performance; and community relations. The research consultancy was awarded to the Monash University-ACER Centre for the Economics of Education and Training (CEET), in association with the Research Centre for Vocational Education and Training (RCVET) at the University of Technology, Sydney. The authors were Chris Selby Smith (CEET), Geof Hawke and Rod McDonald (RCVET) and Joy Selby Smith (a private consultant).

The research project was completed in December 1997 and, since ANTA RAC had by then been abolished, the report was submitted to the National Research and Evaluation Committee (NREC), a sub-committee of the National Centre for Vocational Education Research (NCVER) Board. NCVER has agreed to publish the project report as a book, *Research and VET Decision-Making*, during 1998.

The research team, in investigating the question posed by ANTA RAC, employed five complementary approaches: a review of relevant literature; a symposium; quantitative studies; case studies; and reference to overseas experience. Chapter 3 in the report to NREC, and in the book being published by NCVER, is concerned with the symposium which was held in Melbourne on 19-20 February 1997. The session summaries in that chapter drew out the issues relevant to the project as specified by ANTA RAC: they were not edited texts. Comments generally were not attributable, as the symposium had operated under Chatham House rules.

Because of the valuable material contained in the symposium sessions and the interest expressed in the research project, it was suggested that the material be edited for publication promptly. Drafts were prepared from the original symposium material supplied by participants, supplemented where necessary from the tape recording of the symposium. Agreement for publication was sought from participants; and some speakers took the opportunity to fine tune their contribution. A brief record has also been included of points raised in the discussion periods which were additional to those included in the prepared presentations.

It is a pleasure to acknowledge the valuable assistance provided by Sue Kent of East Melbourne Secretarial Services in preparing the papers for publication.

People who wish to receive the CEET Newsletter or obtain further information on CEET activities should contact Mrs. Val Newson on Tel: 03.9905.9157, Fax: 03.9905.9184 and e-mail <*val.newson@education.monash.edu.au*>.

March 1998 **C.Selby Smith**

Introduction

Chris Selby Smith

Early in 1996 the ANTA[1] Research Advisory Council (ANTA RAC) advertised that it would fund a research project to 'review the evidence for and where possible evaluate the extent of influence of research in vocational education and training'. The Council said it was particularly interested in the impact of research in three areas: policy and planning; practice and performance; and community relations. The motivation for setting up the study was not indicated in the brief. However, there have been suggestions that there was a degree of scepticism on the part of some stakeholders about the value of research and whether the money allocated to research was well spent.[2]

In the tender accepted by the funding body, the research team stated that 'we know from studies of the use and impact of research both within education and in similar areas that the relationship between research and its outcome is almost always complex and not easily discerned ... (and that) ... it is important to note that we do not expect to detect easily the impact of particular pieces of research'. It was proposed therefore that the research question should be examined from a number of different perspectives. Five complementary approaches were to be employed:

- a review of relevant literature, noting that there is no single approach to the issue of the impact of research, either generally, or specifically in vocational education and training;
- a symposium, to identify key issues promptly and draw on different perspectives and approaches to the research question;
- quantitative studies to provide information on the scope and nature of the impact of research on VET;
- case studies, to explore the influence of the factors identified in the literature and in discussion at the symposium in the context of particular situations (the case studies provided a richness that could not be obtained from quantitative responses alone); and
- a reference to overseas experience and perspectives, with a paper setting out preliminary findings to be circulated to informed overseas commentators and their responses incorporated in the final report.

---

[1] Australian National Training Authority

[2] Later in 1996 the ANTA Board recognised the need for a more integrated research effort that would focus on providing advice to the wide range of VET stakeholders: the National Research and Evaluation Committee (NREC) was formed, as a sub-committee of the National Centre for Vocational Education Research (NCVER) Board, to ensure a more focussed approach to the national research and evaluation strategy. NCVER prepared for NREC *The national research and evaluation strategy for vocational education and training in Australia 1997-2000* (NCVER, Adelaide, 1997). A key component of the strategy is assuring that the best use is made of research and evaluation outcomes.

The researchers also proposed, and the funding body accepted, that particular attention would be given to the impact of research on policy and planning, and practice and performance (referred to together as 'decision-making'). Less attention would be given to community relations aspects.

The research question as specified might seem to imply an uncomplicated, linear relationship between research and decision-making. In fact, the relationship cannot be so simply described. Research impact has been the subject of a number of studies in various areas of public policy. These studies have been carried out internationally and in Australia, including by members of the research team and symposium participants.[3] This accumulating knowledge brought us to a more sophisticated starting point.[4]

First, the idea of a one-to-one relationship between research and decision-making generally has been discredited. Rather, the perspectives that have been emphasised in the literature are that the larger impacts of research are more often indirect than direct; delayed rather than immediate; more minor individually but major in combination. Research involves the accumulation of knowledge, as discussion at the symposium emphasised. Research contributes to the 'climate of opinion' and the development of 'ideas in good currency'. Of course, these perspectives do not imply that individual studies necessarily have no impact.

Secondly, the relationships between research and decision-making can be considered from two viewpoints: from that of research and from that of decision-making. The research viewpoint tends to narrow the perspective of the investigator to the research process and research outcomes (the 'key hole' problem) and downplay the complexity of decision-making. From the decision-making viewpoint the role of research is more diffuse, but not necessarily less influential.

Thirdly, the literature identifies a number of roles for research but it is the information role that has attracted most study. It has been argued that research provides 'new and better' information, that it is more 'rational' information and that the quality and accuracy of knowledge based on research is better than that obtained from 'reactive data gathering'. On the other hand, writers have also noted the 'incomplete nature' of much research based information from the decision-makers' perspective: decision-makers can also draw on their own first-hand experience and many sources of direct information. The balanced view, it was argued, is to regard information derived from research as one of a number of sources of information available to decision-makers, and information from all sources as only one of a number of possible inputs into decision-making. 'On a good day, ideas [information] may gain a hearing amidst the swirl of political considerations, but it must be a very good and rare day indeed when policy-makers take

---

[3] For further discussion see Chapter 2 in C. Selby Smith et. al., Research and VET Decision-Making, NCVER, Adelaide, 1998.

[4] It is of interest that while a number of Australian studies make assertions about the impact research does (or does not) have on decision-making in VET, few prior to this study have established the connections, either generally or in relation to particular instances.

their cues mainly from scientific knowledge about the state of the world they hope to change or protect.'[5]

Fourthly, the strength of the linkages between research (and researchers) and decision-making (and decision-makers) also influences research impact. Contact between the two groups, not only at the close of a study, but also before and especially during its conduct, can have a strong influence on impact and can result in 'the establishment of multiple areas of collaboration between the two parties which transcend the impact of a single study'.[6] From a wider perspective, linkages between research and decision-making may also be facilitated through particular institutional arrangements including the media, key stakeholder organisations and other interest groups, and mechanisms such as funding arrangements, so that linkages might be conceptualised better as a 'web' or 'network'.[7]

These considerations led the research team to the view that to 'review the evidence for and where possible evaluate the extent of influence of research on vocational education and training' necessitated an understanding of the dynamics operating in each of the three areas: in decision-making; in research; and in the web of linkages. The organisation of the symposium had regard to this background.

To develop a response to the research question also required that the meaning of the terms ANTA RAC employed, 'impact' and 'influence', be explored. In the consultancy brief ANTA RAC referred to the 'impact' of research on decision-making in the three areas of VET; their research question referred to 'influence'. At the symposium and in discussions with those undertaking the case studies it became clear that the ways in which research can have impact are more wide-ranging than direct effects on decision-making alone. We took the term 'impact' and defined it to incorporate two elements: 'use' and 'influence'. 'Use' refers to whether the research has served a particular purpose. 'Influence' relates more closely to whether the research has had an effect on decision-making; that is, whether it has made a difference to the decision made. 'Use' can have several meanings depending upon the decision-making setting including: to solve a problem; to justify a prior decision; as a weapon in a political debate; and to improve conceptual understanding (see, for example, John Owen's comments in Session 3 of the symposium).

The adoption of these meanings for impact, use and influence has a number of implications. First, it is implied that research can be used but not have an influence, in the sense of not making a difference to what would otherwise have been decided. Secondly, research can influence decisions *not* to act as well as decisions to act. To resolve not to act is as legitimate an outcome of decision-making as to resolve to act. Thirdly, whether

---

[5] Brown, L., "Knowledge and Power: Health Services Research as a Political Resource", pp. 20-45 in E. Ginsberg (ed.), Health Services Research: Key to Health Policy, Harvard University Press, Massachusetts, 1991.

[6] Huberman, M., "Linkages Between Researchers and Practitioners - A Qualitative Study," *American Educational Research Journal*, Summer, Vol. 27, No. 2, pp. 363-391.

[7] Selby Smith, C., Davis, D., Fletcher, A., Fox, C., Ridoutt, L. and Selby Smith, J., *National Health Labour Force Research Program*, Graduate School of Management, Monash University, Melbourne, 1992.

research is used or has influence may not be recognised. At the symposium, for example, some senior VET decision-makers who were known to be working on major policy issues where the ideas were derived from an accumulation of research-based knowledge, claimed that research had little or no impact on their work!

Participants invited to the symposium were experienced and interested in the questions posed by the research study, including some who had been involved previously in impact studies. It was not possible to invite representatives from all of the Commonwealth, State and Territory Training Authorities to be present, even though it was recognised that there are significant differences in their history, culture and administrative arrangements. On the other hand, some participants had occupied a number of roles relevant to the Impact Project during their careers, for example, as policy-makers and later as researchers, or conversely. They were requested to draw on their diverse experience.

The overall purpose of the symposium, which was held in Melbourne on 19-20 February 1997, was to identify issues that could assist in understanding the relationships between research and VET decision-making. Understanding these relationships is necessary for '[reviewing] the evidence for and where possible [evaluating] the extent of influence of research in vocational education and training', the research question. Participants were asked primarily to address this purpose.

It was also recognised that the broad parameters of the research study needed to be established early. Key terms required careful definition; in particular: 'research'; the three areas of decision-making and action which were the focus of the funding body's attention; and 'impact' of research. The research study needed to be bounded: geographically; with regard to the research time frame; and the constituents of VET research. Agreement was also required on the overall perspective of the project: that is, whether the relationships between research, and decision-making and action were to be considered chiefly from the perspective of research or from the perspective of decision-making. The research team had addressed these matters prior to the symposium and our views were set out in a paper distributed to all participants before the meeting. Participants were also invited to comment on this paper in the course of the symposium if they wished. (The paper is reproduced at Appendix 1.)

The structure of the symposium was guided by the overall purpose of the Impact Project set down by the funding body. Sessions were set aside to consider the impact of research from users' perspectives in each of the designated areas: at the State/Territory and national levels in VET policy and planning (Session 1); at the provider level, both in relation to policy and planning and for improved practice and performance (Session 2); and to facilitate interactions between the wider economic, political and societal systems and VET (that is, community relations: Session 5). Perspectives were also sought from researchers working in a range of research settings, including in VET research institutions (Session 3) and in other settings, such as private consultants, as expert advisers and in the formal inquiry process (Session 4). Similar studies have been undertaken in other areas of public policy, for example, in health and in other areas of education. Researchers from these areas reported on their findings in Session 6.

Presenters from the United States and New Zealand added an international perspective to this session. Some additional matters were raised in the plenary session which concluded the symposium. (The symposium program, including the list of presenters, is given at Appendix 2.)

In the event, the symposium proved to be more fruitful than anticipated. Not only were many issues that could assist in understanding the relationships between research and VET decision-making identified: there were three additional outcomes. First, the symposium process was interactive, dynamic and cumulative: one of mutual learning for those prepared to put their cognitive maps in jeopardy. Secondly, it proved possible to develop from the symposium discussions a set of responses to the research question: considered views and material offered by participants; and views and evidence which enabled the research team to draw further conclusions relevant to the research question. Thirdly, the symposium discussions provided insights beyond the specific questions raised by ANTA RAC. In particular, these related to ways of improving the relationships between research and VET decision-making.

In the book which is being published by the National Centre for Vocational Education Research section 5 of chapter 3 summarises the discussion from the individual sessions, while section 6 brings together the particular matters on which the research team's thinking was advanced by the symposium (section 6 is reproduced at Appendix 3). The present volume presents the full range of views put forward by participants, in their prepared material and in the symposium discussions, as far as possible in the words of the participants themselves.

Session 1 The Users of Research: The Use of Research at State/Territory and National Levels - VET Policy and Planning.

Nigel Smart[1] **Speaking Notes**

We have four eminent speakers with wide experience to address this topic: Perce Butterworth (NSW); Gregor Ramsey (NSW, Commonwealth, ANTA RAC); Kareena Arthy (Australian National Training Authority: ANTA); and Robert Bluer (formerly of the National Board of Employment, Education and Training: NBEET). I have been asked to set an appropriate context and this is a significant challenge. I shall try to do it quickly by posing a handful of questions.

VET is operating in a very dynamic and complex environment. So are most government services, including higher education, but my impression is that VET is more complex than higher education (and than many other areas which are undergoing change from government policy at the moment).

This complexity in VET policy making and planning arises in large part from economic, government, employment, delivery, industry and other pressures. And these pressures apply in a system with many structures at both the State and Commonwealth levels, with myriads of committees and coordination arrangements. This tends to make life anything but plain.

So my first question is: can research be responsive enough to this environment? Research is something that traditionally takes some time and requires a bit of thought; but if the policy and economic environment and the operating environment keep changing at a great rate how can research be made responsive, to enable the answers to come out in time for them to be relevant to the current policy debates (even more so if the policy initiatives keep changing rapidly)?

My second question is: can research drive policy or is it always the servant of policy? Much research I have seen looks at whether the policy is working or seeks to fine-tune a policy. But how can research be developed so that it will actually drive the policy debate rather than merely follow it?

My third question is: do researchers speak the same language as policy makers and planners? When one listens to researchers delivering papers at research conferences the language they are talking is quite different from that of the policy makers, particularly at the government level. There is a need to work out how we can improve our ability to communicate together: it is not only the researcher's responsibility, but also that of the policy makers and planners. Furthermore, government policies may be made outside VET and applied to it: I note that this symposium does not include such government policy makers.

---

[1] General Manager, Strategic Planning and Research in the (Victorian) Office of Training and Further Education.

My fourth question is: does the research have sufficient credibility to influence policy makers and planners? I think this is quite a critical question: for example, consider the case of Margaret Mead and the case of Cyril Byrt. In general, one has to ask, how equivocal is the answer that research often provides?

My final question relates to the issue of what is research and how can we assess the impact that research has? In government, research can range from highly sophisticated research to production of a couple of charts to a directed consultancy.

Session 1 The Users of Research: The Use of Research at State/Territory and National Levels - VET Policy and Planning.

Perce Butterworth[1] **Speaking Notes**

Where is the locus of research?: in Ministerial offices, at Commonwealth or State levels?; in the bureaucracy?; in outside bodies? There is very rapid change, which leads to changing agendas, set with very tight timeframes, and often set by political considerations (as in the case of MAATS, the Modern Australian Apprenticeship System).

Ideally, we should have a policy and planning system which is research-based. This is not to say that that is the only base for policy and planning activities. Other factors which need to be considered include politics, practices, resources, culture, educational philosophies and ideologies, etc.

When, however, we turn to our policy and planning activities, what do we find? My experience has been that, for most of the activities in which I am engaged, the cupboard has been relatively bare. Where is there evidence that researchers are contributing to the major debates? What recent significant planning and/or policy shifts can we point to that have been research-generated? Timeliness is a critical factor, so that answers come when you want them, rather than after the horse has bolted.

There are many reasons for this scarcity, including:

- different philosophical/ideological approaches to research;
- structures and structural barriers to the use of research;
- disjunctures between what researchers are researching and what planners and policy makers are working on;
- the atomised nature of research in VET;
- resourcing. This has improved, but the gains need to be defended; and
- the lack of formal and informal links between research and planning and policy-making. We tend to have a research culture and a separate policy making culture: the bridge between them is pretty rickety and not nearly as strong as it might be.

So as a user, how can I increase my use-rate of research? There are really two sides to this:

- the product and its useability; and
- the user and his/her ability to translate, integrate, etc., research into his/her work. This is one of the areas which is lacking. The people who use research, or who should be using it, often have only a passing knowledge of research techniques and

---

[1] Assistant Director-General, Strategic Planning, Resources, Research and Industry Networks, New South Wales Department of Training and Education Coordination.

research methods. In the VET system there are relatively few people with a strong research background.

Focussing on the product and its useability, it is difficult to deny that research reports are growing more user-friendly. Researchers must avoid, however, the temptation to report their results into the public domain via traditional dissemination processes only. I have often wondered what the user satisfaction rate is for many of the reports I have seen. I have never had a questionnaire come across my desk asking whether I am satisfied with the way research is going, as a customer: eg. how satisfied are the users?; what use is being made of the research? Otherwise, as the competition for funding becomes tougher there may be pressures to take the dollars away from research. Should our research come with an "after sales service" agreement, which enables a direct link between researcher and potential client? Dissemination may not be the total answer to this matter.

Turning to the user and his/her ability to use research findings, I cannot help but note my ongoing frustration with, first of all, finding out what is actually in reports that might be useful and caveat-proof; and secondly, making sense of the results. For users to make sense of research reports and research results can be a major challenge. This is not to blacken all research, far from it. What is really important here is to recognise that users are busy people; are often looking for particular information rather than willing to wade through entire research projects; are not necessarily part of the "research culture" that drives much of our education systems; and are often not "research literate".

Apart from the above fundamental points, it is important to note that research is more than information provision. It is technical; it is judgmental; it is interpretive; and it sometimes proffers solutions. If researchers are worth their salt they are not just on about providing information. In some cases researchers are the most knowledgable people in the system; and have to take some responsibility for the judgments to be made.

So how can I derive greater use from research? The answers are many and varied, but some of the more important ones for me are:

- stronger ties between research and future directions and developments;
- improved timeliness;
- weeding out the "what it is necessary to know" from the "what it is nice to know";
- recognising that research is a system necessity; and
- improved user-friendliness.

These can be assisted by:

- closer targeting of research funds to policy and planning issues;
- improved linkages between research and policy and planning, via networks, secondments, etc.;

- recognition that we live in rapidly changing times which require that research is short, punchy and focussed on its impact on the system;
- better planning and leadership from the peak bodies so that we have a clearly articulated path of future development in which researchers can clearly see where their efforts fit; and
- recognising that development is often an important outcome of research.

In conclusion, the Australian VET system has never been in need of more sound research than it is at present. I do not think that our VET systems can go forward without a research base. We all need to lift our game if research is to support a more informed effort in policy and planning.

Session 1 The Users of Research: The Use of Research at State/Territory and National Levels - VET Policy and Planning.

Gregor Ramsey[1] **Speaking Notes**

Background to the Project

The late Russell Linke, a member of ANTA RAC from the beginning, was a first class researcher, with a keen eye for research design. His own research had been directed mainly at policy and he was keen to see such an approach followed wherever possible with ANTA RAC research. His objective approach to research came through as a concern that decisions taken in vocational education and training may not have been based on the best research evidence available or even that research undertaken in the past may have not been sufficiently relevant to the concerns of decision makers.

My own rather late entry into the VET field was marked with some surprise that it seemed slogan riddled, based on ideology rather than the best evidence available as to what was possible. Slogans such as industry driven, competency based, user pays, market driven, outcome focussed, learning on the job, all needed to be backed up by research as well as sound philosophical and theoretical writing. In particular, there was very little said about work, how it was changing, what it was for and how training for work and work itself could fit together. In addition, research in VET is a much lower proportion of total expenditure than in other sectors of eduction.

Characteristics of good managers

If research is to serve senior policy makers and managers, then it is important to know what such people are or should be like. They tend to:

- be pro-active rather than reactive;
- be solution driven rather than problem driven;
- inculcate confidence rather than generate fear;
- take responsibility rather than shirk it;
- build trust rather than mistrust;
- use their influence and power for good rather than flaunting it;
- liberate the talents and abilities in others rather than stifling them;
- be outward looking rather than inward looking;
- lead acceptable change rather than resist it; and
- keep up with their reading to assist their actions, rather than 'winging it'.

---

[1] Partner, TASA International; and former chair of the Australian National Training Authority Research Advisory Council.

Researchers have to serve their needs. In the VET sector, senior policy advisers do not naturally read research, are extremely pressed for time, and are being driven by a rate of change seldom seen in other industry sectors, let alone in education. Also there is very little research available, much polemic and no history of success or even opportunity to base policy decisions on research findings.

Characteristics of senior managers and researchers

Senior managers/policy makers and researchers do not naturally form alliances and they have difficulty in talking to each other on equal terms, if at all. Very few policy administrators have been involved in research to know what researchable questions are. Nor have many of them had "hands on" experience of teaching or curriculum development.

Because of the state by state legislative base for VET, too rarely are findings on a matter in one state made available to all. Even more rarely are international findings considered when policies are being developed, especially those from the non-English speaking world.

The characteristics of researchers and senior managers are compared below. Given the differences in their characteristics and their roles it is not really surprising that they do not talk to each other very comfortably.

Senior Manager	Researcher
• Broad knowledge base	• Narrow, focussed knowledge base
• Share resources fairly among competing demands	• Obtain maximum resources possible even at expense of others
• People centred	• Idea or experiment centred
• Pace of job externally determined	• Pace of job self determined
• Multiple tasks competing for time - work done in short bursts	• Engaged over long periods of time on a single task
• Institutional goal directed and focussed	• Discipline or paradigm directed and focussed
• Delegated authority	• Peer authority
• Listens	• Tells

Mind Set

One of the big problems with people in policy making positions is their mindset! The mindset of people in VET is often very different from the mindset of people in other areas of education. People who are committed to a particular view of the world of VET find it difficult to break out and their mindset influences what policies are proposed and how they are implemented. Mindsets can act to cripple or to expand possibilities.

Two examples: the concept of IQ very much informs the educational mindset of school teachers and university lecturers. It is much less in evidence as a guiding principle in VET. The concepts of market forces and competition heavily influence economists who look for tangible bottom line outcomes. Mindset affects people in the way they:

- see a problem;
- define opportunities and threats in a competitive market;
- assess strengths and weaknesses;
- come up with solutions;
- identify areas of priority;
- make assumptions;
- rationalise away problems and justify inaction; and
- go about change.

Principles of change in education and training

New policy is essentially to bring about change. The greater the expected change and the smaller the timescale for the change then the more difficult it is to bring about. Nor can it always be expected that those involved in the change process are supportive, or even cognisant of its aims, nor can it be assumed that they have the skills required to implement it. A significant proportion of resources and effort is required to ensure that the people required to carry out the change are given the necessary knowledge, skills and team support to be effective.

Policy makers are usually not responsible directly for implementing the change themselves. If a particular change begins to stall, or difficulties arise, the tendency of the policy maker is to blame those endeavouring to implement it, rather than to question either the policy itself, or the rate of change demanded. It will be interesting to see where "blame" will be placed if MAATS begins to stall.

There are three important principles which should be applied when endeavouring to bring about change in VET:

(i) Strategic: a desired end should be decided, and plans prepared to reach the goal. These strategies should be achievable, based on what is known.

(ii) Sceptical: a critical appraisal should be made of principles underpinning the required change, the resources available to achieve it, and the evidence available that the planned change is likely to be successful. We do not see this sufficiently in vocational education and training. In fact, it is absolutely critical; but people do not like their pet theories being prodded.

(iii) Collaborative: everyone involved in implementing the change must be knowledgeable about what is expected, have the skills to implement the change and be able to work in appropriate teams.

Each of these principles requires sound research support. But beyond that there is need for a broad research culture in VET. An "educational impact statement" is critical to see whether the immediate benefits of the change are worth the resources, time and difficulty that so often accompanies them.

Innovation that is not researched

During times of change, the opportunity to change other things which may be peripheral to the main strategy is sometimes taken. These changes can take time and resources away from core business, and from the implementation of strategic plans. There are three kinds of innovation which can be counter productive, often because they provide no real gains and are not based on sound evidence, but rather on "it seemed like a good idea at the time":

(i) Multiple innovation: unresearched "good" ideas are undertaken in an uncoordinated way; new reforms are tried before previous ones have had time to take effect or be effectively evaluated.

(ii) Innovation without change: attempts to respond to various problems or pseudo problems as identified, for example, by the press or industry, whether in relation to education and training specifically, or to the economy or society more generally.

(iii) Change without innovation: there is plenty of action, but no improvement. Organisational structures are changed, authorities are abolished, financial arrangements are altered without any significant gains in student outcomes.

Dissemination of research information

The dissemination of research information is critical if it is to affect policy makers and those who influence directions for change. Processes whereby researchers and policy makers come together should be formalised, and researchers should see what they do as much in terms of the kind of information policy makers need as researching an interesting question. Much more effort is needed on behalf of, or by, researchers to ensure that all stakeholders of VET gain the maximum benefit from what they do. Much more effort is needed by, or on behalf of, policy makers to describe their information needs in researchable terms. Particularly, the facility to pose their needs in terms of questions that can be answered by research and those which cannot is essential. Some points relating to the dissemination of research information include:

(i) the plan for the dissemination of research information is as important as the research methodology;

(ii) the dissemination requirement should influence the funding of the research;

(iii) dissemination is a demand side rather than a supply side issue: that is, research information must be put in a form that can easily be handled by policy makers. Research is about providing something for people who need it. Often we try to solve the problem by changes on the supply side;

(iv) policy makers, senior managers and researchers need an ongoing dialogue;

(v) researchers need to make policy makers "hungry" for their findings; and

(vi) policy makers need to make researchers "hungry" for the questions they need answered.

Conclusion

Research rarely gives simple answers because most of the questions that are posed are complex, often environment dependent, and not easily generalisable beyond the sample and circumstances in which they were undertaken. Policy makers have to sift through the information that is available, seeking trends, finding out what is likely to be effective and in the end making bold judgments from data which are too limited.

Researchers on the other hand, particularly when they are independent of the policy makers, often point to flaws in policy, problems with implementation and unintended consequences that the policy makers would prefer not to hear. This is a creative tension, and it is a rare policy maker who can accept bad news as cheerfully as good and who can see this information as actually being more important in a policy sense than supportive research.

Session 1 The Users of Research: The Use of Research at State/Territory and National Levels - VET Policy and Planning.

Kareena Arthy[1] **Speaking Notes**

In an ideal world, research should be present at all stages of policy planning and development:

- "good idea" phase - research triggers good ideas for future policy development;
- "policy development" phase - policy development should be enhanced by input/testing/verification from research; and
- "implementation" phase - policy should be reviewable/evaluated and results should inform further development or new ideas.

There should be continual feedback loops between each of these phases.

However, policy development that does benefit from this sort of input is rare. More often than not, policy is planned, developed and implemented without (or with very little) targeted/strategic input from VET research.

So, in examining the impact of VET research it would be worthwhile to investigate the barriers to research effectively affecting policy. Such barriers include:

- the timelines involved - policy timelines and research timelines are usually incompatible due to the relatively shorter term nature of policy development compared to research;
- "policy maker blindness" - where policy makers either have a lack of knowledge of available research or have a lack of understanding of how the available research should be used. Many policy makers are not literate in research methods and the caveats which attach to research findings: this can lead to misreporting and to bad policy outcomes.
- lack of research available. Generally, research has been reactive rather than pro-active: so, when making policy, it is often difficult to find relevant research which is available at that time.
- confidentiality concerns / political nature of policy work.

Each of these factors have direct and indirect impacts on how effective research is for policy, making it very difficult to isolate the impact of research on policy.

In assessing the impact of research on policy from a policy maker's perspective, there are essentially three elements to be considered:

---

[1] Kareena Arthy is Manager of the Communications and Research Team at the Australian National Training Authority. As Kim Bannikoff was unable to attend the symposium at short notice, Kareena presented his paper.

- how *effective* was the research in advancing the debate on policy (eg. by initiating new ideas, proving or disproving theorems: disproving can be very important);
- how *appropriate* was the research (policy makers want practical solutions/options that are presented in an easy to understand format. They do not want to read through huge reports); and
- how *timely* was the research (no matter how good the research is, if it is not timely, it may as well sit on a shelf).

The next question is when in the policy cycle do you assess the impact of research on policy:

- as policy maker uses each piece of research;
- once policy is developed;
- once policy is implemented; or
- once the outcomes of the policy are seen?

I suggest each of these stages is important, particularly that research you absorb in the initial stages of policy development. It may not be used until much later, if at all (it could be used even years later for another subject).

It would be interesting to conduct a longitudinal study which maps the use of research in policy development - but the timelines involved in this project may not make it possible.

Finally, I do not think that the impact of research on policy in VET can be separated from the impact of research on community relations (as implied in the ANTA RAC project brief). Research is to inform and policy cannot work if the right people are not informed. People are not going to accept the policy makers' word blindly that a particular policy is "good for them" - they need to be convinced, which is where research comes in. "Community relations" is often the wheel that falls off in the whole policy cycle. Research can help rectify this and enable policy to be developed and implemented more smoothly.

Session 1 The Users of Research: The Use of Research at State/Territory and National Levels - VET Policy and Planning.

Robert Bluer[1] **Speaking Notes**

These brief comments seek to examine how some commissioned research undertaken to support advice from the Employment and Skills Formation Council (ESFC) of the National Board of Employment, Education and Training (NBEET) affected the policy report, its recommendations and the Commonwealth Government's response. This perspective is from a policy advisory body rather than from a policy maker; and it is more difficult to judge impact or ultimate directions or outcomes. The Department provided advice to the Minister as a matter of course in relation to advice given by ESFC; generally it gave different advice to the Minister than the ESFC.

Commissioned research (and any other available research relevant to the question being asked) is only one factor impacting on policy advice (see below): others, such as the views of the Department (DEET) or the extant policy or policies of the government, are extremely important influences on the final stage of policy advice.

At the same time the views of the Council members and their own constituencies and the influences exerted on the policy development process from the relevant communities were also important. The Council included a number of contending forces. Broader community views were sought by consultations and in other ways.

My own view is that commissioned research may be the least important influence on most occasions.

[1] Consultant in education and training. From 1988 to 1995 he was Counsellor to the National Board of Employment, Education and Training.

For the purposes of illustration I will take three reports representing policy advice from the ESFC and their associated commissioned research. These are listed below.

Reports of Employment and Skills Formation Council.

1. Raising the Standard: Middle Level Skills in the Australian Workforce (1993)

   Commissioned Research

   (i) Towers Perrin, Industry Profiles: A Stocktake of Advanced Vocational and Technical (Middle Level) Competencies in Eight Industries (April, 1993).

   (ii) Burke, G., Qualifications of Persons Aged 22 and 30: Approximate Estimates for 1992 and 2001 (August, 1993)

2. The Shape of Things to Come: Small Business Employment and Skills (1994)

   Commissioned Research

   Sweeney & Associates, Small Business Index: special questions on small business employment, skills and staff training (February, 1994)

3. Converging Technology, Work and Learning (1995)

   Commissioned Research

   (i) Rearck Research / TELEpartners International Technology Convergence and Future Skill Needs in Australian Industry to 2005 (June, 1995)

   (ii) Tinkler, D., Lepani, B., Mitchell, J. Education and Technology Convergence (June, 1995)

It needs to be emphasised that the exercise here is concerned exclusively with attempting to assess the impact of the research on the final shape of the policy report, its recommendations and the government response.

Research Input	Impacts on:		
	Policy Report	Recommendations	Government Response
1. Towers Perrin	minor	negligible	nil
1. Burke	major	major	nil
2. Sweeney & Associates	minor	minor	minor
3. Rearck/ Telecentres	minor	negligible	nil
3. Tinkler et. al.	major	major	nil

In terms of the impact on the policy report itself the assessment from the above table is mixed. Both the Burke and Tinkler et. al. research were deemed to have had a major impact. This is to be expected; the fact that three of the five pieces of work had only a minor impact indicates either that the research did not answer the desired questions or answered them in a way which was difficult to use in a major fashion.

It needs to be stressed that this outcome may have been the result of the ESFC either asking the wrong questions or asking them in a way which made them difficult to answer.

The middle column in the table above indicates a link between impact on the policy report and impact on recommendations. Two pieces of commissioned research basically fall away to nothing, while the Burke and Tinkler work continues to show strong impact.

The final column is the most problematic. While an initial government response may be negative, as in the majority of cases above, it is difficult to determine the time frame or even the context in order to make these judgments, particularly over the longer term and in relation to broad changes in community attitudes rather than immediate decisions by governments.

For example, in relation to the 1995 technology report the Department and the Government were strongly negative in relation to proposals to spread computers in schools on a ratio basis. However, this did not deter them from going to the 1996 election campaign with just such a policy. In another dimension this approach has been strongly promoted by almost all State Governments since the release of the report.

This ratio approach arose directly from the commissioned research. This raises the issue of the timeframe over which the use or impact of research on decision making should be considered.

Session 1 The Users of Research: The Use of Research at State/Territory and National Levels - VET Policy and Planning.

Other Matters Raised in the Discussion Period

Matters additional to those identified by the five speakers which were raised in the discussion period included:

- Prior research can be important in subsequent policy making, so long as decision makers are aware of it or have systems to check for it when required. In many cases, perhaps increasingly so, this appears not to be the case.

- Researchers tend not to be entrepreneurial; and getting access to levels in a VET policy making organisation which are interested in research and can affect decision making may be difficult. There can be many gatekeepers and blockages, many agendas other than research. Researchers may not be very interested in undertaking these tasks, they may not be good at them and the institutions in which they work and seek to thrive may not always give high priority to dissemination of research compared to its conduct.

- Are decision makers as keen to encourage research which is critical of established policies and practice as research which confirms or fine tunes them? In the long run research has a valuable role in critical examination of current practice and in presenting challenging alternatives to decision makers.

- There was discussion about the time period over which the impact, if any, of research on decision making should be considered. It may be that the complete impact can only be determined in "the fullness of time" and that measures of immediate impact may be misleading.

Session 2 The Users of Research: Use of Research by VET Providers for Improved Practice and Performance, and Policy and Planning at Provider Level.

Virginia Simmons[1] **Speaking Notes**

Since the presenters will focus their remarks on the extent to which research influences VET providers in the pursuit of improved practice, performance, policy and planning at provider level, a useful way to put the issues into perspective might be to examine the range of major current influences on VET providers, regardless of whether or not they fall within the definition of 'research' as suggested in the background paper, and see where research 'sits' within this range of influences.

To speak from the perspective of a TAFE Institute Director, the fundamental starting point is that VET providers operate in a fiercely competitive market: internationally; between States in Australia; between providers locally; and between the public and private sector providers. They not only want to improve their practice and performance, but they want to be seen to be doing so by both their customers and by government, since this is a marketing edge and/or a means to attract additional resources in a climate where they are fighting for survival.

The areas which most influence them in my view are:

- State and national policy directions. This raises the question '*Are these policy directions influenced by research?*' as was discussed in the previous session. Here it is arguable that the point at which VET providers become most interested in research is the point at which it has already been translated, by whatever complex process, into policy. VET providers tend to be in a largely reactive situation.
- State and national ITB's and ITAB's. They can have a substantial impact on providers. The same comment applies here as to the first point above.
- 'Best practice' examples. Government is investing resources into establishing 'best practice' examples: performance indicators, targets and benchmarks; and budget guidelines. These are usually drawn from other providers and industry, consistent with the training market concept. They may include 'models' such as ISO 9001 certification, the *Australian Quality Awards* (AQA) criteria or *Investors in People*.
- Locally generated and locally specific research that VET providers undertake. These might include student characteristics; trend data and market research; or student, employer and staff surveys. In the training market this research often has *commercial in confidence* status; and it is never available for public use in a competitive training market.

The above areas show a practical and pragmatic approach and partly reflect the reactive role providers are forced into in the current policy environment. Nonetheless, like good research, they can often also inform long-term policy and planning directions.

---

[1] Director, Kangan Institute of Technical and Further Education, Melbourne.

Session 2 **The Users of Research: Use of Research by VET Providers for Improved Practice and Performance, and Policy and Planning at Provider Level.**

Brian Jones[1] **Speaking Notes**

1. INTRODUCTION

This paper presents two case studies of the use of research in vocational education and training as part of the ANTA RAC study on the links between research and policy, planning and performance in vocational education and training. These case studies are presented in point form rather than a written paper: readers interested in more detail or information should contact Brian Jones at Sydney Institute of Technology, telephone 9217 4135 or email brian.jones@tafensw.edu.au

2. CASE STUDY ONE

The TAFE NSW Resource Allocation Model - a Case Study of the Use of Research at Sydney Institute of Technology.

2.1 Background

In November 1992 TAFE NSW initiated a project to develop a suitable model for allocating recurrent expenditure between the various TAFE NSW Institutes. It was a top down development.

The resulting Resource Allocation Model (RAM) proposed that Institutes be allocated resources based on their volume of annual student contact hours (ASCH) and that the cost unit be expressed as $ASCH.

The main goals of RAM were based on:

Efficiency: to be measured by cost per SCH

Equity: measured by participation rates and SCH per target populations

Budget: measured by meeting budgetary targets.

Other goals targeted for future work were:

Appropriateness: measured by ASCH per industry grouping

Effectiveness: measured by $ per graduate ASCH.

2.2 Initial Concerns at Sydney Institute of Technology in 1994

Following the introduction of RAM in 1994, a number of concerns were expressed by Sydney Institute of Technology. Some of these concerns were:

---

[1] Faculty Director, Manufacturing / Personal and Community Services, Sydney Institute of Technology.

- RAM was centrally driven by Corporate services at TAFE NSW in order to drive efficiencies into Institute operations;
- RAM was perceived to be the introduction of a funding policy that would not allow for the identification of vocational education and training profile differences between Institutes, and also the "uniqueness" of Sydney Institute; and
- the Institute had limited opportunity to challenge RAM because of the lack of local data and adequate information systems. We could not respond from the bottom up because we did not have the necessary data.

2.3 Current Situation

Funding from TAFE NSW to Sydney Institute of Technology continues to be influenced by RAM. The Institute continues to challenge certain aspects of the RAM methodology during funding allocation negotiations through the influence of our own research. The Institute is using the RAM approach in attempting to measure its own performance.

2.4 Research Impact at Sydney Institute of Technology 1994-1997

In terms of Institute practice and performance and the development of Institute policies and planning arrangements, continued research into the use of RAM has had a number of significant impacts. Some of these are:

- there has been a change in Institute organisation culture with increased staff acceptance of the need to achieve greater efficiency and accountability in Institute operations;
- more efficient systems for data collection, analysis and interpretation have been developed and are constantly being improved. This has been driven internally in response to the initial development of RAM centrally;
- decision making and planning arrangements are more "transparent". External sources of VET data collections eg., the Monash-Syntec economic appraisals, Australian Classification of Occupations (ASCO) are also used in the decision making and planning process;
- the Institute now has work practices that encourage continuous research to measure its own performance. $ASCH, for example, is now an accepted Institute performance measure used to measure efficient usage of resources;
- any challenge to corporate TAFE is now based on fact. We think we are in a better position to go ahead from a research base;
- new research areas are being explored concerning the impact of RAM on Institute practice and performance. As the training reform agenda develops over time we are better able to target particular areas to investigate in relation to Institute operations. Examples include the special needs of target groups, work based learning arrangements and science technician occupations;

- practically all research work is "in-house". There is little evidence of any research involving RAM at the Institute level being used as research material for post-graduate degrees. There are considerable further opportunities to be exploited here; and
- opportunities for research consultancies with external agencies have become available.

2.5 References

Australian National Training Authority, (1996). Annual Report Volume 3: *Benchmarking Vocational Education and Training*, Australian National Training Authority.

Goozee, G., (1996). *Devolved National Project on the Methods of Resource Allocation in Vocational Education and Training in Australia. Final Report. Methods of Resource Allocation in Vocational Education and Training in Australia*, TAFE NSW.

Planning and Evaluation Unit TAFE NSW, (1993). *Resource Allocation Model: Report to Institute Directors Data, TAFE NSW.*

Planning and Evaluation Unit TAFE NSW, (1994). *Resource Allocation Model: Issues, TAFE NSW.*

3. CASE STUDY 2

The TAFE NSW Research Association - Case Study of VET Research in TAFE NSW.

3.1 The TAFE NSW Research Association

In 1993 the Sydney Institute of Technology formed a "Research Association". This then expanded to the TAFE NSW Research Association in 1995. Membership of the current Association is open to all full-time and permanent part-time members of staff. No registration fees are involved. Initial seed funding of the TAFE NSW Research Association was by donations from the Directors of the various TAFE NSW Institutes.

In terms of strategic planning, the vision of the Association is: *"to be renowned for excellence and rigour in our research into vocational education and training"*, while the mission statement is: "*to encourage and enhance research by members into all aspects of vocational education and training."*

3.2 Activities of the Research Association

3.2.1 Research Grants

The purpose of the TAFE NSW Research Grants is to enhance and progress interest in research amongst TAFE NSW staff. The grants are a means whereby the Research Association promotes research activity in TAFE and supports research proposed by its members.

For 1997 up to five grants of $1,000 will be available on a competitive basis to full-time and part-time permanent TAFE staff. These grants can be used:

- to provide assistance in conducting investigations or inquiries into issues of relevance to vocational education and training;
- to provide assistance for following up previous or exploratory research conducted at the local TAFE NSW Institute/OTEN/other TAFE unit level which is relevant to vocational education and training; and
- to assist with research costs associated with the pursuit of formal studies which are relevant to vocational education and training and are career related or proposed for professional development purposes.

3.2.2 Workshops and Annual Conference

Workshops involving research-in-progress, research methodologies and guest speakers can be organised throughout the year. In April this year, for example, a research-in-progress workshop will be held at the Loftus campus of the Southern Sydney Institute.

The December 1996 Annual Conference presented twenty-three papers. Details of these are included as Appendix 1 and are presented as the three major themes of the Conference: *Identified Groups; Policy Research; and Teaching and Learning.*

3.3 Research Impact

Since it began in 1994 the TAFE NSW Research Association has had a number of impacts at both the Institute and Corporate services levels. These include:

- encouragement of an organisational culture where VET research is an accepted activity and where there is constructive attention to the links between research activities and policy, planning and performance;
- the opportunity to disseminate results of research activities across the state wide TAFE NSW system and to other interested users;
- an increase in formal VET research papers presented that are from research carried out at post-graduate level at a range of Universities. At the December 1996 Conference some 6 to 8 papers were in this category (Masters or PhD level);
- an expanding TAFE NSW "pool of expertise" in VET research with experience in a range of research methodologies across a wide spectrum of research interests;
- variations of impact on policy, planning and performance. These range from no impact, despite good research, to immediate impact and improvement. The acceptance of research results is influenced by such things as political agendas, the economic climate, management strategies, attitudes and the timeframe of the research.

4. APPENDIX 1 - PAPERS PRESENTED AT THE TAFE NSW RESEARCH ASSOCIATION CONFERENCE, DECEMBER 1996

4.1 Identified Groups - 6 Papers

Anderson, T. Education Policy and Research Unit, and Cheung, K. Statistics Unit: *Using TAFE NSW enrolment data to profile students in industry groups prior to conducting study research.*

Boote, J. Hunter Institute: *Implementing Flexible Delivery for Students with Disabilities: Profits and Problems.*

Green, E. OTEN: *Rural Youth Suicide: A Revisionist Perspective.*

Ingle, B. New England Institute: *Review of JSS TAFE.*

MacColl, S. Education Development Division: *No Matter How, No Matter Where - Recognition of Overseas Skills and Qualifications Project.*

Sim, C. Multicultural Education Unit: *Training for Ethnic Small Business.*

4.2 Policy - 10 Papers

Anderson, T. Education Policy and Research Unit and Scott, H. Policy Unit: *Using Research to Assist Policy Implementation: A Case Study.*

Bartier, J. Foundation Studies Training Division, Baylis, P. Language Solutions and Horlyck, J. Classic Research: *On the Job Curriculum Development and Delivery - What Does it Mean for TAFE and the Workplace?*

Bolack, S. Illawarra Institute: *What is This Thing Called MAATS?*

Coombe, W. Western Sydney Institute: *Research Comfortable or Challenging.*

Gillezeau, A. Sydney Institute: *Using a Research Tool for Teaching.*

Jenkins, H. International Services Unit: *Perceptions of Ethical Issues in Establishing Workbased Teams in TAFE NSW.*

Manwarring, C. Sydney Institute: *Researching Nurses' Competence - An Ethnographic Approach.*

Scott, H. Policy Unit, Corporate Services: *Theorising the Policy of Vocational Education and Training - Where is the Policy Voice in a Devolved TAFE Structure?*

Williams, D. Sydney Institute, and Johnson, S. Sydney Institute: *Student Selection Processes in TAFE - Analysis and Case Study.*

Wyatt, D. Sydney Institute: *Intelligent Systems Support for HRM.*

4.3 Teaching/Learning - 7 Papers

Belme, J. Sydney Institute and Hart, P. TAFE Disabilities: *Satisfied VET Customers, or are they? Inclusive Customer Satisfaction Measures for VET.*

Bourke, J. South Western Institute: *Increasing Confidence and Independence in Formal Learning.*

Clemens, T. Sydney Institute and Garrood, S. Sydney Institute: *Some Observations on Management and Small Business in New South Wales TAFE Programs.*

Ingle, B. New England Institute: *An Integrated Approach to Flexible Delivery in Rural Australia.*

Lal, V. OTEN: *An Innovative Model for Developing Flexible Learning Resources.*

Nyland, B. Illawarra Institute: *A Report on a Return to Industry Activity.*

Webb, G. Sydney Institute: *A New Learning Environment for College-Based Programmes - Internet Based Training.*

Session 2 **The Users of Research: Use of Research by VET Providers for Improved Practice and Performance, and Policy and Planning at Provider Level.**

Geoff Creek[1] **Speaking Notes**

1. SCIENTIFIC AND VET RESEARCH (YANCO Agricultural Institute[2]/ Murrumbidgee College of Agriculture)

- pure versus applied. Government funding is encouraging more applied research.
- problem solving versus improvements in outputs.
- production performance versus government policy.
- market focus. Greater focus on real world problems.
- industry uptake levels a function of:
  - degree of consultation
  - industry funding/ownership
  - cross disciplinary teams
  - industry leaders/innovators.
- qualitative versus quantitative.
- trend to contract research.
- research design/methodologies.
- reliability and replication of research. We need to be very careful about claims from people in ITAB's that this or that is what industry wants. There is also an issue of how representative ITAB's are: often successful business people do not have the time to be actively involved.
- adaptation of overseas research. There is a research interpretation function: how to use (and often to adapt) overseas research for use in Australia.
- integration of research with extensions/training to avoid isolation.
- industry trials.
- relevance to industry and institution.

2. IMPLEMENTATION / DISSEMINATION OF RESULTS

This is similar in relation to VET to our practice in agricultural research and extension. Perhaps there is not yet the same culture or tradition in VET; if so it needs to be addressed.

- conferences / seminars / workshops
  - papers

---

[1] Principal of the Murrumbidgee College of Agriculture at Yanco, NSW.

[2] NSW centre of excellence for rice and horticulture.

  - presentations
  - proceedings
  - staff development / reporting back.
- journals / literature can be valuable. I have not found many Australian VET journals which are useful to me as a training manager.
- staff exchanges / visits with proactive industries and providers. Important for the professional development of staff.
- formal and informal networks can help to motivate staff and get them focussed.
- collaborative research with other providers and industry.
- case studies - publications
  - presentations / visits.
- coursework / studies of staff enrolled at University. Opportunities for mutually beneficial cooperation.
- field days - living displays of implementation.
- media.
- use of "second tier".
- varying levels of uptake - innovators versus followers.
- institutional seminars - staff and industry
  - regional.
- customer /client surveys - quality assurance.
- national / international dissemination.
- communication of results. Increasingly this is being recognised in the research context, eg.
  - low cost journals, videos, Internet, CD ROM
  - include requirement in contracts
  - reviews of national and international literature
  - monographs.

3. RESEARCH PRIORITIES

- pure versus applied (industry needs).
- determined by funding bodies / client / customer.
- improvements in efficiency and effectiveness of methodologies.
- real world focus - industry versus institution (eg. workplace training).
- extension / adult training / existing workforce.
- use and development of technology.
- new training technologies.

  - appropriateness
  - CD ROM / Internet
  - cost effectiveness.
- evaluation / assessment methods.
- training methodologies.
- cost effectiveness of delivery.
- costs of delivery.
- preferred mode of delivery.
- industry / market training needs
  - sector
  - enterprises
  - individual.
- improved models for determining industry needs
  - reliability
  - quality
  - representative.
- impacts of government policy, both NSW and Federal Government policies
  - access and equity, including for Aboriginal and Torres Strait Islander (ATSI) people and communities, where cultural sensitivity and research ethics are particularly important
  - economic development
  - environmental
  - small business.
- need for cultural sensitivity / ethics of research.
- state, national, international trends
  - eg workplace training, user choice, funding, labour market training.
- resource allocation
  - human resources
  - curriculum and training materials development
  - capital works
  - information technology
  - management
  - effectiveness versus efficiency.
- quality assurance.
- distance education.

4. PROFESSIONAL DEVELOPMENT OF STAFF

- need for preservice and inservice training
  - improved training skills and methodologies

  - to improve analytical and research skills. They are important for staff and for the institutions; for our culture, for promotion and for evaluation.
- culture of lifelong learning for staff.
- integration of graduate and post graduate students at institutions and in industry.
- research fellows located with industry and institutions.
- links to staff performance appraisals and progression
  - evidence of training in applied research
  - evidence of application of research findings
  - evidence of strong industry links and support. If not, they are unlikely to have support staff for their research or even resources for stores and travel.
- cross discipline project teams.
- collaborative arrangements between institutions in VET and in higher education, with industry, with funding bodies (eg. Cooperative Research Centres).
- sourcing trained staff with professional research skills
  - particularly for rural / remote areas
  - internal versus outsourcing (retaining staff, expense / effectiveness of consultants)
  - developing staff with potential
  - training programs.
- acknowledging staff - writing up their findings / results (lack of time).
- research and development precinct.

5. RESEARCH FUNDING

- sources of funds.
- research could be a component of all project budgets, not just delivery (cf scientific budgets).
- project reports should include research findings, recommendations and implementation strategies.
- rigorous research methodologies to be specified in contracts (cf quasi/pseudo research and data).
- collaborative teams.
- contract research.

Session 2 **The Users of Research: Use of Research by VET Providers for Improved Practice and Performance, and Policy and Planning at Provider Level.**

Rod McDonald and Geof Hawke[1] **Prepared Paper**

1. INTRODUCTION

This paper attempts to draw together some lessons, from different perspectives, for research in workplace learning and assessment. Our conclusions are based on a variety of sources, including our own experience in policy forums, in working with practitioners of vocational education and training, and from our own involvement in VET research.

2. POLICY PERSPECTIVES

Any analysis of the effect of VET research on policy raises some very important and quite disturbing questions for people engaged in policy analysis, development and implementation. The main message is that research has played a very small role in informing policy developments over the past decade. Moreover, most of the research into workplace learning and assessment has been undertaken after the event — as a consequence of the policy decisions which placed so much importance on industry ownership and provision of vocational education and training (VET).

Given that the reality of VET policy development has not followed the patterns and processes the liberal rational problem solving model leads us to expect, and given that research has not played a significant influence on recent policy developments, it is important to identify just what has limited the value of existing research to policy makers; what research information and product policy makers need; and what questions research needs to address and answer if it is to exercise greater influence in the future.

The first point to make is that the answers to these question are dependent on the context in which they are asked. The type of research answers needed by policy makers during a period of stability and development within an established framework such as that which pertained during the decade from 1974 were different from the type of answers required during a period of fundamental change such as has existed since the mid-1980s.

Given that a systematic VET research agenda was not developed during the former period this paper will focus on developments of the latter period, the present and possible future; and the concept of epistemological change throws light on the changes which were foisted onto a frequently resistant vocational education and training system. Analysis of major scientific changes, and, dare we say, analysis of major personal and organisational changes, provide an understanding of the elements which constitute a critical mass for change. Those include:

---

[1] Director and Senior Research Fellow, respectively, at The Research Centre for Vocational Education and Training, University of Technology, Sydney.

- The *if it isn't broken, don't fix it* principle. For major change to take place there has to be a strong and prevailing belief that the existing paradigm, organisational structure or way of doing things is no longer capable of providing adequate responses to prevailing issues or of meeting systemic or organisational requirements. Without such a belief there will be institutional and individual resistance to change. The impetus for such a belief does not have to emerge from the paradigm or system itself. Rather it can be imposed on the system by unforeseen and profoundly troubling external factors.
- The *if there isn't an obviously better system or way of doing things, retain the present even if it is not perfect* principle. Knowledge that the presently utilised paradigm system or present way of doing things is not capable of solving all problems is not in itself sufficient to spark a paradigm shift/systemic change. Rather, people, organisations and systems have to be convinced that there is a better alternative, and that it is very likely to produce more adequate solutions/outcomes.
- The *if the alternative system or way of doing things realistically is not achievable do not dispense with the present arrangements* principle. Knowing that the existing paradigm or system is inadequate and knowing that a viable alternative exists are not sufficient to spark the epistemological shift if none of the players believe the alternative is available to them. It would be foolhardy to risk all in a major paradigm shift if the alternative is believed to be unattainable.

Even if these three principles can be met, there is still no guarantee that change will occur. Without a sufficiently strategic and strong coalition of forces for change attempts to force change will be thwarted. Socio-economic and socio-cultural change is very uneven and marked by both coincidences of and conflicts in interest and purpose. If the forces for change cannot stitch together an adequate coalition, change will not occur. Even with a sufficient coalition, there will be resistance to the paradigm shift-resistance expressed in the full diversity of creativity available to those who remain committed to the existing system or way of doing things, no matter the basis of their position.

We would argue that this is what has happened in relation to the reform of vocational education and training in Australia.

What policy makers need

What policy makers have needed in the past was not just an adequate research base, but researchers who were able to present their findings in ways relevant to the policy debates of the time. It is not sufficient to develop strong research and dissemination programs. Just as there is a significant time lag between the "discovery" of new scientific knowledge and its application in the form of new technologies/products, there is also an implementation lag in social scientific research and application processes. This "translation" problem is compounded by the political imperative to respond to issues and to be seen to respond now and not later. Governments cannot declare a moratorium on policy development until appropriate research findings are available.

In summary, what policy makers needed then and need now is stronger and more critically attuned research and dissemination programs combined with a greater ability to translate research findings so that they can inform the strategic policy making processes.

What has limited the value of research to policy makers?

Perhaps the best approach to answering this question is to identify the elements which contributed to the push for a major systemic change in the organisation and delivery of VET in Australia. The national training reform agenda with all of its constitutive parts evolved or rather was constructed on a set of beliefs about the context and nature of the existing system.

- The economic context of the future VET system:
  - we have to carve a competitive niche in an increasingly competitive global economy;
  - we have to reconstruct and develop our value adding manufacturing and services sectors;
  - we have to catch the high information technology wave; and
  - the best way to do this is to have an open economy and a highly skilled workforce.
- The failings and inadequacies of the existing system:
  - it is controlled by bureaucrats and educationalists and is unresponsive to the needs of industry;
  - the curriculum is largely content based and unresponsive to industry requirements;
  - VET teachers tend not to have appropriate and recent hands-on workplace experience; and
  - it serves to protect skilled enclaves as opposed to facilitating articulation and skill transfer.
- The existence of an available alternative mode of organising and providing VET which promises to more adequately meet the needs of a dynamic VET system in an open economy within a global market place. The features of the alternative system were identified in other countries and included:
  - industry ownership and control;
  - increased industry financial contributions and direct provision;
  - competency as opposed to content based curriculum;
  - work place delivery and assessment; and
  - skill recognition, transfer and articulation.
- The construction of a strategic coalition of interests sufficient to put in place the reform agenda.

In many ways the last feature was crucial and it was based on the many faceted nature of the rhetoric surrounding the reform agenda. In short it meant all things to all people:

- For governments it promised greater industry financial contributions at a time of fiscal austerity, and in addition it was assumed capable of delivering industry relevance, a

more highly skilled workforce, all of the professed advantages of a competitive training market and, above all, international competitiveness.

- For employers it held the promise of increased industry control and relevance of VET, reduced bureaucratic triple jumping, and the hope of custom made enterprise based modularised competency training, increased efficiency and productivity, increased profits, and so on
- For unions it held the promise of a more highly / deeply / broadly competent workforce capable of earning high wages and capable of assuming increased responsibility on the shop floor, career paths for all workers, proper recognition of existing competencies, and the hope of fostering increased equity within the workforce.
- For the women's movement it held the hope that, combined with award restructuring based on demonstrated competencies, the competency and workplace based system would facilitate the industrial pursuit of equal pay for work of equal value.
- For the welfare sector, the national training reform agenda held the promise of an opportunity for greater equity, career paths, and the avoidance of a low skill / low wage future.

In identifying these hopes and potential benefits it should be stressed that none of the parties involved in the process believed that their claim would unambiguously win out. All parties were sophisticated enough to identify the risks, but to proceed on the assumption that on balance it was possible to stitch together a loose coalition for change which would provide a positive sum outcome for all parties.

It goes without saying that, on the whole, the arguments which held sway in the debate about VET policy were not based on well supported research findings about the efficacy of competency based and workplace training and assessment. Rather, they were grounded in research findings relating more directly to:

- the nature and context of the Australian economy, to macro economic, industry and trade policy research;
- the changing nature and organisation of work and industrial relations; and to
- socio-economic equity and justice.

The weight of analysis combined with a socio-political preference for a high-tech / high wage value adding response to the demands of globalisation to identify an "imperative" for a highly competent and flexible workforce. To the extent that the existing TAFE system could be seen not to be delivering these outcomes, and to the extent that there were international trends which promised their delivery, the relative lack of research findings on the efficacy of the training reform agenda was of scant regard. Moreover, there was plenty of hearsay evidence to the effect that the existing system was too bureaucratic, centralised, inflexible and incapable of meeting industry requirements.

When thoughtfully combined and articulated these analyses and concerns held the promise of a VET system capable of producing a highly competent workforce and

lighting the path to global competitiveness. The arguments were founded on a profound concern about the future viability of the Australian economy, and a well constructed scenario holding sufficient promise to a sufficient array of interest groups. Perhaps we should add a further criterion for an effective paradigm shift:

- The *a good story goes a long way in the right circumstances* principle.

Perhaps it was, and remains, a good (if exaggerated) story.

3. PERSPECTIVES FROM PRACTICE

In the Australian VET context, "practitioners" are a diverse group. For the purpose of this paper, the practitioners (whose interests research needs to serve) include industry trainers, HRD managers, TAFE teachers, government officials involved in funding education or training provision, and others who are responsible for providing education and training services to learners, to industry, to government agencies and to enterprises.

What practitioners need

In considering the contribution that research can make to practice it is useful to begin with a clear outline of what practitioners might, reasonably, ask of an effective VET system and, then, to consider what research might do to assist them in achieving those needs. Much research may take place in "a compound over there", with little reference to what it might be used for.

a. A consistent and reasonably stable context

The environment within which VET practitioners are operating is one of significant and constant change. These changes have far exceeded the rate of change in the community more generally. For example, Hawke and McDonald (1995) identified twelve significant policy documents concerning just one area of the national VET system between 1992 and 1995. Practitioners are confused as to what may be the policy this week, and frustrated by the need to constantly change their practice and documentation

b. Clear and feasible rules and regulations

In addition, much of current policy appears to have been driven by ideological, political and "religious" conviction rather than by any clear understanding of the needs and preferences of the various stakeholders in the VET system. Moreover, policy-makers are being required to work to timeframes which force decisions to be made without adequate reflection, and without the opportunity to test and refine their implementation. This is particularly manifest in the many attempts to define and prescribe regulatory arrangements. Practitioners have consistently defined these as unhelpful, impossible to implement in practice and unwieldy. One issue which has emerged in a number of research projects concerns the different views taken by States in the national training reform agenda which reflect more often the idiosyncratic views of individuals rather than different legitimate views the States might have.

c. Clear and useful guidance

By the very nature of their role, practitioners are focused on the implementation of policies developed elsewhere and on translating these into effective and useful outcomes for learners and other clients of the system. Because of their background, their interests, the pressures on their time, competing priorities and a host of other causes, practitioners in general do not want to have to constantly re-invent the wheel. Their dominant interest is in providing the best possible service and, to do that, they want to know:

- how best to carry out their responsibilities;
- how to improve their existing practice; and
- how to avoid making mistakes.

d. Clear information on why various strategies work and/or are more effective than others.

Practitioners are often characterised as wanting to know "what" but not "why". In reality, however, practitioners want to understand the choices they need to make, and are commonly in the position of needing to adapt and modify their work to meet changing client needs and changing contexts. This requires an intelligent and informed understanding of the principles which shape their practice.

Factors which have limited the value of VET research to practitioners

a. Problems of currency

The constant changes in policy and direction that have been experienced have made much recent research actually or apparently of little value. Frequently, research findings have only been formulated or disseminated after the policy or practice they sought to inform has been abandoned or significantly modified.

b. Accessibility

Too much of the research to date has been inaccessible to practitioners. This difficulty has two important dimensions:

- a significant proportion of the research has been written in a language and form which is not meaningful to most practitioners; and
- the findings of the great majority of research in the area have been published in places and ways which are not normally accessed by practitioners. In particular, one-off research reports have been the principal means of publishing research findings. These are difficult to locate, often out of print or otherwise not available.

For academic researchers, academic journals and research reports are commonly used, but they are often not available to practitioners. Even where more "popular" magazines (such as *Australian Training Review*) have been used, these have limited circulation.

c. Credibility

Practitioners want facts, not fashion, to be the basis of policy. Unfortunately, most practitioners recognise that a significant proportion of the recent Australian VET literature is better described, in Laurie Field's words, as based on 'religious' beliefs.

To date, the majority of Australian research on learning and assessment in the workplace has been simply descriptive of other people's practice. Practitioners have not found in such research useful analysis of why some approaches work well under some circumstances, and others do not.

In particular, too much "research" has been uncritically promotional, rather than critically evaluative. For example, as Docking has noted, practitioners are faced with a plethora of models all purporting to be the "true" or "best" interpretation of CBA. They need clearer information on choosing between competing models and, ultimately, better guidance on selecting and testing different approaches.

d. "Different strokes for different folks"

A recurring theme we have observed is the diversity of interests, needs and values which colour the development of research and policy and, subsequently, the extent of its usefulness to practitioners. Two particular facets of this are:

- the wide diversity of understandings of the term "competence" and the difficulty of moving forward when, in effect, we are speaking different languages; and
- the divergence in the needs and expectations of different groups of practitioners- exemplified, for example, by the fact that virtually every significant feature of a workplace learning system that an employer might regard as cost-effective, an employee might see as expensive, and vice versa.

4 THE RESEARCHERS' PERSPECTIVE

What do researchers need?

If research is to make a contribution to workplace learning and assessment a number of issues need to be addressed. While those relate directly to researchers, they are vital considerations if a secure knowledge base concerning workplace learning is to be established and if initiatives are to result in improved outcomes.

a. A body of data and good-quality research which they can readily access

It does not matter how much research is conducted, the investment is of little value if it is not accessible without difficulty The more time researchers spend tracking down publications from obscure sources or obtaining copies of government sponsored studies which are out of print and have not been lodged in key libraries, the less time they can spend on research.

Once located, the research must be of sufficient quality to enable confidence to be placed in the findings. This means, among many things, that the work can withstand critical scrutiny by other researchers. It needs to be well documented, complete and described in sufficient detail to enable comparable studies to be conducted elsewhere. Summaries of findings which may be sufficient for practitioners and implications which may meet the needs of policy-makers are inadequate in themselves for researchers.

Research also needs to speak to different audiences. While research needs to be more theoretically sophisticated, it needs to avoid criticism from practitioners that it does not relate to them. This points to the need for different kinds of reporting from a single study.

b. Research which is adequately contextualised

The single most important feature of any research study is that it is clear what was being studied and in what circumstances the research occurred. The range of workplaces and organisational practices is far more diverse than those to be found in other educational settings and it is a necessary part of interpreting a study that all the salient features of the setting be taken into account. For example, many workplace learning practices are driven by industrial agreements and to describe the practices without considering the influence of agreements is to misinterpret what is happening. General surveys across contexts are vulnerable to criticism of this kind.

Research ought to be fully contextualised - it has to be fully cognisant of the socio-economic and socio-cultural context as well as the institutional context. This does not mean that every research project should start with a comprehensive review of the global and domestic context. Rather there is an important place for "regional" analyses and research projects, but they should proceed on what can be termed ecological principles of full cognisance of the context of the local and specific.

c. Research which is sensibly conceptualised

Almost as important as the context, is the conceptual framework which the research adopts. All research has a conceptual framework, which takes account of other research conducted on similar topics or using similar research approaches, but sometimes the researcher does not know what it is or cannot explain it to others. Unless this is explicit, the biases and limitations of the research often cannot be considered and the status of the findings cannot be assessed.

Research is severely limited if it consists of isolated studies. Unless it uses other work it is of very limited applicability. This means that reports must refer to and take account of other studies. Research needs to be both self critical and critical of the work already undertaken, so that each study can build on others in ways which provide perspectives on workplace learning which are larger than the sum of the parts.

There is also the problem that the overwhelming balance of Australian research into learning and assessment in the workplace has been descriptive and qualitative. Very little has sought to quantify or categorise the data. Very little has sought to test explicit hypotheses.

d. Sources of sponsorship for research which are not so tightly circumscribed that they cannot deliver a good quality product

The outcomes of research are only as good as the questions which are commissioned For very good reasons of policy, practice and resources, studies may be constrained by time or scope. This does not pose a difficulty for researchers for any given project. However, if all research is influenced by short term requirements, then it will never be possible to create a literature which addresses broader questions of longer term significance.

What has limited the value of research from the researchers' perspective?

Does research on workplace learning and assessment meet the requirements of researchers as indicated above? The general answer is no. There are a number of issues which need to be addressed

a. Research is not sufficiently accessible

Encouragement is needed to publish and to lodge reports publicly, as is an effective clearing house for research material. The literature searches undertaken as part of the Impact Project indicate that only a small proportion of the Australian research which has been undertaken can be readily located and accessed. So little of it has been reviewed and collated to date that it is difficult to draw convincing conclusions from it.

Research is not reported in systematic ways or in publications which are readily available beyond the local context. The overwhelming volume of studies in Australia and overseas are reported only to the agency which funded them. A large proportion of these are government bodies which, while they do not typically bar publication, tend not to encourage or financially support publication in wider forums. When reports are publicly available, there is often a short print run, a limited circulation list and no consistency in lodging reports in libraries, clearing houses or indexes of publications (eg. the Australian Education Index). Much that is worthwhile is effectively lost.

Informal publication in the form of reports does not encourage quality research. When the prime audience of a research report is non-researchers, there is a tendency to write for this audience and pay less attention to reporting on the kind of research issues which are necessary to ensure confidence in the outcomes. In quantitative research this includes issues such as adequate sampling and application of appropriate statistical tests; in qualitative research it includes matters such as ensuring that reported data adequately reflect the emphases of parties involved and suitably situating studies.

b. Research is inadequately contextualised.

One of the characteristics of workplace learning is that it is highly complex and contextualised. Much of it cannot be understood outside its particular setting and the organisational practices within which it is embedded. Much more effort needs to be taken on revealing and reporting on the context of studies. This includes the motives of the various players who have initiated and participated in the study, the historic, economic and cultural context in which learning is taking place, the various incentives and disincentives which impact on the practice under study, the nature and backgrounds of the staff involved, etc.

Little research takes sufficient account of work done by others. As suggested above, reports and other publications are short on reviewing the literature and locating the study reported among other studies. This leads to a scatter of unrelated and often unrelatable work which does not build to create a wider understanding of workplace learning. The involvement of university researchers in the area is too recent to have made much impact on any of the problems mentioned above, although they are slowly contributing to the wider dissemination of outcomes through publicly available journals.

c. Research is inadequately conceptualised

All research, no matter how 'commonsensical', is based upon a theoretical model or set of conceptions. More emphasis is needed on making these conceptions explicit and revealing the assumptions upon which a given study is based. There is a greater likelihood of research building from study to study if an explicit theoretical framework is adopted which can be debated and challenged. Errors and misconceptions cannot be corrected when they are buried in data. Very little current research in the area has grown from any models or conceptualisations of learning or assessment within workplaces. These theorisations are needed and research needs to support, question and test them.

Research needs to be conceptualised across disciplines. Research on workplace learning exists at the intersection of many different academic disciplinary interests: education and training, organisational behaviour, economics, management, industrial relations, technological change, cultural studies, etc. This necessarily involves collaboration and greater communication paths between researchers who have different affiliations. Most important research questions have a multi-disciplinary character.

d. Research does not reflect the diversity of interests it serves

We have assumed, for the sake of expediency, that there are three main groups of interests in research in workplace learning, but in practice there are many more and their concerns are many and varied. Within organisations, for example, there are varying interests depending on whether the perspectives of employers, workers, managers, unionists or shareholders are central. These interests are not reducible to a single perspective. Research on workplace learning must always acknowledge the existence of such interests and how they might impact on how research is conceived, what is being studied and how it is reported.

There is little independent research undertaken on workplace learning. The major volume of research is conducted at the behest of government agencies and is related to the priorities which they determine. There is apparently little research undertaken by organisations, except evaluative and costing studies that are directly related to the implementation of particular programs and not reported outside the organisation. There is hardly any research on workplace learning which has been funded from the competitively assessed and peer reviewed sources which normally support academic research. A small amount of research is beginning to be undertaken by research students, often in employment, which is independent in character. Research is driven at present by too limited a set of agendas. This means that the disinterest or independence needed to identify the totality of the context in which workplace learning occurs is missing.

e. Research is insufficiently critical

Too much emphasis is placed on simple description of practice. Analysis and critical reflection is neglected. Very little has sought to quantify or categorise the data. Very often accounts are taken at face value and the context and dynamics of organisations are neglected. A limited range of research approaches has been adopted. A strong theme concerns the need for research to question received wisdom and policy positions. Practitioners are uncomfortable that significant changes have been introduced to systems, processes and ideas with little or no apparent evidence that the changes will succeed or provide improved outcomes.

Research on workplace learning is short-term, patchy and unsystematic. Studies are undertaken for reasons of policy and practice which normally relate to short-term concerns. Short term projects do not encourage reflection and consolidation of research across a wider front. Research to date has treated the various contexts and locations of vocational learning as if they were interchangeable, but there appears to be good reason for explicitly identifying the influences of the industry, the enterprise, the site, the HR context, decision-making systems, etc

More critically evaluative work is needed. Research is required which explicitly seeks to evaluate the effectiveness of various approaches to learning and assessment in the workplace so as to provide practitioners with clearer guidance on choices between methodologies and assistance with their practice.

There is relatively little strategic sense and consistency in the research which is commissioned. Priorities change from year to year, in response to changing government agendas and political pressures. There is little consistency over time of a kind that could lead to the production of a body of work which could realistically address any one of the issues currently on national agendas. While some degree of coordination could ensure that better value is obtained from studies, it is important that this be done in a way which respects the necessary variety of practice and the needs of researchers. Any coordination should seek the advice of researchers drawn from a variety of interests.

5. FURTHER RESEARCH IN WORKPLACE LEARNING AND ASSESSMENT

As will be clear, there is no shortage of work needing to be done in order to provide policymakers, practitioners and researchers with the information and perspectives they need in order to create a more effective VET system. But what questions would be particularly helpful to practitioners if researchers could illuminate them? We suggest that the strongest need is for research in three main areas:

a. The nature of learning in the workplace

Under this heading, we mean research into learning from a variety of disciplinary perspectives, including:

- how learning occurs;
- how it should be organised and controlled;
- how it can be made to more effectively meet the needs of and benefit more people;
- the classroom and the workplace as environments for learning;
- the extent to which common principles of teaching and learning are appropriate across the full spectrum of learning environments; and
- how teaching and learning strategies interact with individual characteristics, such as gender and culture.

b. An evaluation of recent reforms and developments

Research which explicitly seeks to evaluate the effectiveness of various approaches to learning and assessment in the workplace, so as to provide practitioners with clearer guidance on choices between methodologies and assistance with their practice.

Although evaluation is a particular type of research, rather than a topic area, it is listed here because of the paucity of research available which has either evaluated recent reforms using sound research methodology, or offered serious critiques, from a research perspective, of VET policy and the resultant practices which affect learning and assessment. Issues that are in need of urgent research attention are:

- what features of VET reform have "worked", and why?;
- how the various parties have benefited, and at what costs?;
- the cost-effectiveness of various approaches to competency-based assessment; and
- whether the current arrangements properly acknowledge informal learning, or whether informal learning is distorted by the need to "fit the system"?

c. Research into system-wide issues

Obviously, the effectiveness of workplace learning and assessment is greatly affected by the structures and policy within which it occurs. Research is needed into:

- how to give people 'the right ammunition' to expand employer and employee involvement in VET?;
- how to ensure that qualifications are recognised, regardless of where they come from?; and
- what is the desirable mix of private and public provision and on and off the job provision?

6. CONCLUSION

Certain themes are noteworthy, particularly:

a. The need for the context in which research takes place to be understood

Research is needed which details the context within which the research takes place and makes this explicit. It has to be fully cognisant of the socio-economic and socio-cultural context, the institutional context, and the historical and strategic contexts. There is a critically important place for specific studies, but they should proceed with full cognisance of their local and specific context.

Local or regional research projects ought, then, to be balanced and contextualised by broader studies of vocational and adult education and training informed by history, economics, sociology and government. These studies should form a much debated contextual framework for local and regional studies.

b. A contribution to resolving the deep "either/or" divides

A major recurring theme is the extent to which dichotomies have been imposed on the framework within which practitioners are required to operate. What contribution can research make to resolving the deep "either/or" divides which are increasingly being reflected within the disparity between policy/philosophy and practice?

At a broader level, research is needed to reject the dualist ways of seeing or representing workplace learning and assessment-to express it in extreme terms, to see learning as either instrumentalist tools of exploitative capital or the vehicle for liberal progressive human fulfilment through lifelong learning. Workplace learning can be reduced to neither and it is constituted by variable elements of each, with the mix depending on the specific context and upon the actions of participants in those contexts.

c. A final comment

One other aspect deserves comment. The landmark report *No Small Change* (McDonald et al. 1992) identified a number of shortcomings in VET research in Australia. In brief, they were that:

- current research is fragmented;
- there is little fundamental and general-issues-based research;
- the research that has been carried out is not fully used;
- the "big issues" need much more intensive research; and
- there is no strong critique of policies and programs.

What is striking is that these messages were essentially repeated by practitioners in the course of this project. This is despite the fact that there have, in fact, been massive changes in the amount of research activity and the amount of financial support for it since then. The most plausible explanation is that there is often a considerable time-lag between the funding of research to its application-through the stages of planning a project, carrying it out, analysing the results, publishing, developing materials, to the final application.

The fact that these themes are still alive does, however, suggest a very strong argument that funding and policy bodies need to keep them uppermost in their minds as VET research becomes established in Australia

REFERENCES

Hawke, G. A. and McDonald, R. (1996). *When Rhetoric Meets Reality: Issues Confronting the National Framework for the Recognition of Training*. Sydney, Research Centre for Vocational Education and Training, University of Technology, Sydney.

McDonald, R., Hayton, G., Gonczi, A., and Hager, P. (1992). *No Small Change. Proposals for a national research and development strategy for vocational education and training in Australia.* Sydney, University of Technology, Sydney.

Session 2 **The Users of Research: Use of Research by VET Providers for Improved Practice and Performance, and Policy and Planning at Provider Level.**

Brian Conroy[1] **Speaking Notes**

1. About the Victorian Employers' Chamber of Commerce and Industry

- Largest multi-sector business organisation in Australia.
- About 8,000 members. Very varied interests and perspectives.
- Members in all sectors, but more than 60% in services sector.
- More than 90% of members are in small business.
- Active interest in VET.

2. VECCI's Interest in VET

- Policy
  - MAATS
  - VET in schools
  - User Choice
  - Flexible delivery
  - Workplace assessment.
- Participant
  - JITEC, a joint employer and union body concerned with VET.
  - VETAB
  - State Training Board
  - MCEETYA Task Force
  - Private Provider
  - Small Business Training Company.

3. Impact of Research on Policy, Planning and Performance?

Three categories of research:

- Major studies commissioned by Government or Ministers.
- Research for ITABs. Much of it has produced very significant positive outcomes in terms of changing the VET system.
- Academic/theoretical research.[2] This is the group which worries me.

---

[1] Manager, Training and Education, Victorian Employers' Chamber of Commerce and Industry, Melbourne.

[2] Most of the ANTA RAC research falls under this heading. I tend to feel that it has not led to much benefit to or changes in VET. I rang half a dozen industry contacts who work actively in the VET system. They stated that they had little knowledge of research in VET and gave little support to any substantial impact on decision making from such research.

4. Increasing the Impact of Research[3]

- Make it more relevant to key policy matters and tackle the harder issues. Some issues have been about for a number of years (eg. workplace assessment) and important aspects have not been tackled by researchers.
- Do more than just report on observations; develop creative policy strategies. This is the hard part.
- Develop alliances with stakeholders who have an interest in VET.
- Become more aggressive advocates, either themselves or work with other advocacy organisations, including those from the business sector.
- Use public relations more effectively.

[3] A number of these matters echo points which were made in the first session of the symposium.

Session 2 The Users of Research: Use of Research by VET Providers for Improved Practice and Performance, and Policy and Planning at Provider Level.

Other Matters Raised in the Discussion Period

Among the points raised in the discussion period which followed Session 2 of the symposium and which had not been included in the five formal contributions, four are noted.

First, it was suggested that both short term consolidated overviews of particular research areas in VET and their implications for national and State/Territory level policy makers and for individual training providers and also the long term developments of new paradigms and greater insight into and understanding of important aspects of the VET systems in Australia justify greater emphasis. Both are necessary: the issue is one of the balance between them. A diversity of funding sources and some continuing attention to longer-term research projects (including longitudinal studies) were generally seen as desirable.

Secondly, there was the suggestion that collaboration in VET research was highly desirable, for example, as between users and practitioners, between researchers or practitioners in different States or between industry and educational institutions, but that it is likely to take a considerable period of time and substantial persistence to change existing arrangements and informal habits of thought and action.

Thirdly, further comments were made on the research process. It was emphasised that research skills and attitudes, as well as new and improved information, are important outcomes of the research system. It was suggested that "learning is more important than teaching". It was stressed that a reasonable degree of policy stability or at least clarity of the broad directions of policy change was required if research was to make its maximum contribution to improved policy or practice. It was also argued that the impact of research generally flows, not from a single piece of research, but from the accumulation of studies which build on each other and illuminate an area of policy concern or of practice: quantitative assessment of impact will often be difficult, *a fortiori* for any one study. Unexpected or delayed use or impact is quite conceivable and may be frequent. In addition, research activities can increase the researcher's visibility and potential influence with key stakeholders or powerful actors within research institutions. Research can have symbolic as well as instrumental outcomes on policy and practice.

Fourthly, there appeared to be considerable support for the view that at least a modest research capacity (widely defined) in a VET provider assists in better adjustment to external policy change; to improved practice and performance in teaching, learning and community service; and to an enhanced capacity to interact with the wider research community, with favourable effects on institutional performance overall.

Session 3 Research and Researchers' Perspectives: From the Viewpoint of VET Research Institutions.

John Owen[1] **Speaking Notes**

KEY NOTIONS:

- **Distinction between use and factors affecting use.**

  Use of research [professional social enquiry] within the working knowledge of practitioners.

- **Working Knowledge.**

  The organised body of knowledge that administrators use spontaneously in their work. It includes the entire array of beliefs, assumptions, interests and experiences that influence the behaviour of individuals at work. It also includes science knowledge. The term working, as used here, has two meanings. First, it means that this is a special domain of knowledge that is relevant to one's job. Second, it means that the knowledge itself is tentative, subject to change as the worker encounters new situations or new evidence.

- **Types of use:**
  - *instrumental use:* when new knowledge is used for problem solving in an agency, and the need for knowledge has originated in that agency.
  - *conceptual use:* when new knowledge leads to users' increased conceptual understanding and long term changes in thought patterns.
  - *political use*: when new knowledge is used as a weapon in an explicit political conflict.
  - *interactive use*: when new knowledge is used with other elements to construct a knowledge background for a key decision, such as to use a new technique or create a new policy.
  - *legitimative use*: when new knowledge is used to back up or justify a decision already made by an agency.

- **Professional social enquiry.**

  Alternative approaches:

  - *Scientific knowledge creation.* Basic and applied research traditionally undertaken in universities and dedicated scientific agencies falls under this category. Development of theory is a goal of the work.

    Work of 'typical university researchers in sociology and social science'.

---

[1] Centre for Program Education, The University of Melbourne.

- *Investigator controlled applied research*. The researcher believes that the work has practical implications. There is encouragement for users to collaborate.

  Some projects undertaken by the Australian Council for Educational Research and the Centre for Applied Educational Research at the University of Melbourne.

- *Investigator-user equality*. Initiation of the problem can come from the researcher and user together or from the user. Either group can question the problem, but after the problem is refined, the researcher is responsible for the investigation.

  Program evaluation carried out by the Centre for Program Evaluation at the University of Melbourne.

- *User-oriented action*. A user with a (local) problem asks for assistance from a researcher. A major source of advice is the expertise and past experience of the researcher.

  Action research fits within this model. This is a major form of investigation designed to empower providers and improve practice.

- *Consultancy advice*. A user requests help from a non-specialist consultant in the area of concern. The non-specialist may be in the field of management or accounting or organisational design. The consultant gets 'up to speed' rapidly in the area of concern.

  'Down town' consultancy organisations which have emerged as a result of downsizing, the reduction of internal expertise, and an emphasis on 'contracting out'.

Session 3 Research and Researchers' Perspectives: From the Viewpoint of VET Research Institutions.

Chris Robinson[1] **Speaking Notes**

1. SOME OBSERVATIONS ABOUT THE IMPACT OF VET RESEARCH ON POLICY.

Three issues:

- What, if anything, does research tell us about the impact of VET research on policy?
- How are VET policy decisions made and the role of research?
- Future directions and the need to make VET research more relevant to policy.

2. WHAT DOES VET RESEARCH TELL US ABOUT THE IMPACT OF VET RESEARCH ON POLICY?

2.1 Comment

- There is very little research which attempts to assess the impact of VET research on policy, almost none looking at the questions:
  - "How does research affect decision making at the training provider level?"
  - "How has research affected the general climate of public or employer support for training?"
- Some exceptions are:
  - Butterworth, Perce (1995) "Some new challenges for research in vocational education and training".
  - Butterworth, Perce (1994) "VET research in Australia: a long way to go".
  - Butterworth, Perce (1993) "Research synthesis: research related to education institutes".
  - Hall, William (1996) "Work and training".
  - Hall, William (1993) "Does research influence policy?".
  - McDonald, Rod and Hawke, Geof (1996) "How should we spend our research money?".
  - McDonald, Rod, Hayton, Geoff, Gonczi, Andrew and Hager, Paul (1993) "No small change: proposals for a research and development strategy for vocational education and training in Australia".
  - Ramsey, Gregor (1993) "Vocational education and training research: making an impact".
  - Wiltshire, Kenneth (1993) "Role of research in policy making".

[1] The Managing Director, National Centre for Vocational Education Research, Adelaide.

2.2 Observations

- Quantifying the impact of research in a systematic way is difficult. Most work looks at "anecdotal evidence" or makes "general propositions".
- Research has had a limited impact on VET policy making.
- Any impact has largely been ad hoc.
- This research has also had a limited impact on VET research priorities and methodologies to date.

3. HOW VET POLICY DECISIONS ARE MADE AND THE ROLE OF RESEARCH.

3.1 Comment

Four levels of policy decision making:

- Pragmatic policy decisions:
  - no systemic consultation or research.
  - stakeholder views and selected research used in an ad hoc way to support a particular stance.
  - by far the most common.
- Policy decisions based on consultation:
  - systematic consultation usually limited to invited participants/major stakeholders.
  - usually oral, not formal written submissions.
  - no research or limited ad hoc use of research.
- Policy decisions based on Green / White Paper process:
  - systematic consultations.
  - opportunity for formal public submissions with no restrictions on who can put submissions.
  - close Ministerial involvement.
  - Ministerial preparation of Green Paper / discussion paper / consultation paper.
  - opportunity for further public comment on Green Paper.
  - subsequent government release of new policy in official White Paper.
  - a more systematic use of research to support approach.
  - but still tends to be a selective use of research.
- Policy decisions based on independent public inquiry:
  - external and expert committee formed to undertake inquiry.
  - open and wide consultations.
  - public invited to make formal submissions in addition to major stakeholders.
  - systemic investigation of body of relevant research.
  - further research often commissioned.
  - relevant Minister(s) at arms length from the inquiry process.
  - independent recommendations made to government in published report.

- government considers public reaction to published report of enquiry before releasing official policy response.

3.2 Observations

- Relatively few key VET policy decisions are based on an independent inquiry process. A few exceptions are:
  - Kangan Report establishing modern TAFE system.
  - Kirby Report establishing traineeships.
  - Finn Report setting training targets.
  - Taylor Report reviewing ANTA Agreement.
- Consequently, both extensive full public consultation and systematic use of research have played a relatively small role in VET policy decisions.
- This is because of complex political context involving:
  - Commonwealth / State.
  - Employers / Unions.
- This makes pragmatic and negotiated decisions the most usual approach and has sometimes led to a different kind of policy investigation approach, such as the Carmichael Report.
- Policies appear to be more enduring when they are based on full consultation **and** systematic research.

4. FUTURE DIRECTIONS

- New national research and evaluation committee (NREC) has been established recently:
  - to develop an integrated national research and evaluation strategy.
  - replaces former array of advisory bodies.
- National strategy will encompass:
  - ANTA's national research and evaluation program; and
  - NCVER's in-house VET research program.
- New national research and evaluation strategy will be based on:
  - systematic research into themes of national VET strategy.
  - research and evaluation priorities developed by ANTA.
  - analysis of stocktakes of priority research areas to see what has already been done and to identify where gaps in knowledge exist.
  - consultation amongst stakeholders.
- Key features of new strategy:
  - main aim is to make research and evaluation integral to VET policy decision making;
  - also to improve quality of decisions made by customers and providers of VET; and
  - dissemination and synthesis of research / evaluation findings just as important as doing research itself.

Session 3 Research and Researchers' Perspectives: From the Viewpoint of VET Research Institutions.

Geof Hawke[1] **Speaking Notes**

Focus on three particular areas where there are quite significant constraints on the capacity of research to impact on policy and practice.

1. THE VET ENVIRONMENT

- The nature of the VET sector is such that even research of short duration can be too slow for its relevance to policy.
- "Secrecy" and speed of much policy development tends to lead to a lack of awareness by researchers of policy changes and current practice. Also, much material is 'commercial in confidence'.
- Rapidity of change can lead to rapid outdatedness. Timeliness is a two way problem.
- Poor availability of policy papers. Researchers may find that the relevant documents or other material on which policy has been based, or is to be based, are not available.

2. CONTRACT-DRIVEN RESEARCH

- Is increasing, but contracts often driven by short-term interests. The commissioning bodies may be looking for simple answers to simple questions. Buyers tend to be becoming narrower and more specific in their requirements. Collateral information and analysis may be being constrained.
- Inadequate specification of many tenders, especially as to the expected outcomes. Some specifications seem to focus more on methodology than on expected outcomes. There is sometimes a failure to specify exactly what the buyer wants. This presents problems for researchers, but it originates in the decision-making systems.
- Tendency to stifle critical analysis. Contract driven research may discourage researchers from asking the really difficult questions. Sometimes the users "want nice supportive answers to questions on which they already know their own decision / position".

3. LACK OF RECOGNITION OF APPLIED RESEARCH

The increasing interest in outsourcing. VET research may not be equally highly valued in the university context, eg. for

(i) the DEETYA Research Quantum; or

(ii) University promotions criteria for staff.

---

[1] Senior Research Fellow, Research Centre for Vocational Education and Training, University of Technology, Sydney.

Session 3 Research and Researchers' Perspectives: From the Viewpoint of VET Research Institutions.

Gerald Burke[1] **Spoken Comments**

- The VET research undertaken by consulting firms is increasing. Such researchers may be prepared to tailor their reports to the perceived needs of their customers. Are they always, indeed are other researchers always, willing to tell the full story, warts and all? However, in other cases they may be as independent as the university researcher, who is increasingly dependent on outside funding. After all, in the long term, researchers, irrespective of the setting in which they undertake their research, are dependent on their reputation for undertaking valuable work.

- The Monash University - ACER Centre for the Economics of Education and Training (CEET) aims to be relevant to the concerns of policy makers and practitioners - and not only because it is in the funding agreement with ANTA. It is quite high in our priorities. Interaction with a range of stakeholders in VET assists us in understanding current policies and practice; it tends to foster an increase in mutual understanding. However, there is an issue of the time commitment which is required compared to other priorities, such as getting on with the research.

- CEET does emphasise dissemination, secondments and research training. Our work in this area has taken a quantum leap since we began to receive ANTA RAC funding. We are finding that we need to present in a range of different ways and in a range of different forums. One may need to continue to interact with users and potential users in relation to the findings of a research project over an extended period.

- Some CEET projects are directly relevant to policy concerns or to current practice, but others are longer term in orientation and may seek to increase the knowledge base, to undertake general reviews of particular areas of concern to VET or to provide information and analysis which can be drawn on by others, whether practitioners, policy makers or other researchers (perhaps over an extended time period). The immediate implications of such research studies for policy or practice are not always clear; and the eventual use or impact may be diverse.

- There can be value in studies which critically examine current approaches, existing objectives or the degree to which they are achieved. If critical findings impact on continued funding the research results and their implications may not be fully explored and widely disseminated. Perhaps researchers need to cultivate a diversity of funding sources, so that they are not too dependent on a single source and can continue to proffer independent advice based on the evidence they observe.

- In the long run the impact of research in relation to both VET policy and VET practice will be influenced by the quality of the research and also by the quality of its

[1] Executive Director, Monash University - Australian Council for Educational Research Centre for the Economics of Education and Training, Monash University, Melbourne.

dissemination. "Sustained interactivity", as Martin Huberman has noted, can be an effective means of fostering instrumental change.

Session 3 Research and Researchers' Perspectives: From the Viewpoint of VET Research Institutions.

John Ainley[1] **Spoken Comments**

Discussing the impact of research on vocational education and training policy and practice from the viewpoint of a research institution I will consider four issues that arise from the experience of conducting research in school eduction. These issues concern:

- the importance of cumulation in building a body of research-based knowledge;
- diversity in the origins of research problems and destinations of research results;
- the multiple pathways through which research comes to impact on policy and practice; and
- the importance of timing and the planning of the dissemination process.

First, the research enterprise is a cumulative one. A piece of work rarely stands on its own, although some commissioned work may need to address a specific matter "and it remains just that". But even of commissioned research, much ultimately goes into the body of accumulating knowledge. The implication is that we do not just look at study A and seek to estimate what the outcomes of study A were in terms of policy or practice. In some cases it may be more helpful to ask where did this idea or practice originate? And what part in that process was played by research activity and research findings? "Trace back studies" take the outcomes or the practice and ask where that innovation came from. The results of those studies tend to be more encouraging to us as researchers: we generally find that there were a multiple of research studies which had an impact on practice. It depends on conceiving of the research enterprise as contributing to an accumulating body of knowledge. Some trace back studies in science and engineering suggest that the benefit from research activity may be greater from fundamental research than from more applied research. The findings are not always in the direction of favouring immediate relevance and immediate practical application.

Secondly, there is the notion of multifaceted sources of, and destinations for, research. Some practical problems may seek, even obtain, solutions from the world of scholarship and can be used in the world of practice. There are also a wide range of possible interactions. In considering the utilisation of research we should not only be looking at problems which were defined by policy or practice, but also look at research which originated in the world of scholarship, some of which have had tremendous implications for the world of practice as well. Conceptualising sources and destinations in this way makes us think rather more broadly about where the research knowledge comes from, as well as where it is going.

Thirdly, there is the issue of multiple pathways and impacts. We need to think about the utilisation of research-based information in terms of impacting on a number of people, including policy makers, teachers and practitioners, designers of curriculum materials and

[1] Associate Director, Australian Council for Educational Research, Melbourne.

courses, and many others. The pathways can go via many routes rather than via just one (say, policy maker to researcher); and the influence can go through indirect as well as direct pathways, eg. through the climate of ideas or the way people think about an issue. And how does a particular individual or group recognise that the source of this or that idea which began to circulate originated in research? Huberman (1990) argues that the stronger the links between policy people and researchers, and Cousins and Leithwood (1986) argue that the stronger the links between teachers and researchers, the stronger those pathways are likely to be, with a greater likelihood of the uptake of new ideas. The linkages may, of course, at another level be just a means of ensuring that the right questions are addressed rather than something valuable in themselves.

Fourthly, we can reflect on a number of ACER projects and the characteristics of those projects which led to some having more impact than others. Timing was important, but the right timing in retrospect was more often fortuitous than planned. Timing can be important at the beginning of a project as well as at the end. The issue was important and significant to someone. The quality of the study was sound: generally research findings did not get taken up if the quality of the study was poor. The message in these reports tended to be clearly identified and expressed. The potential users knew about the study; it was part of the thinking of people to whom the report was going to be directed. Finally, ACER had formulated a dissemination strategy: "We did not just dump it on the desk and go." The biggest impact came when ACER had thought carefully about who needed to be informed about the research report, its findings and its possible uses for policy or practice.

References:

Cousins, J. B. and Leithwood, K. A. (1986) "Current empirical research on evaluation utilisation", *Review of Educational Research*, 56(3), pp 331-364.

Huberman, M. (1990) "Linkage between researchers and practitioners: a qualitative study", *American Educational Research Journal*, 27(2), pp 363-391.

Session 3 Research and Researchers' Perspectives: From the Viewpoint of VET Research Institutions.

Other Matters Raised in the Discussion Period

Among the matters raised in the discussion period, but which were additional to those made in the five contributed papers, three are noted. First, it was argued that research in VET should be "bottom - up" as well as "top - down". Some participants in the symposium argued that too much research on the VET sector 'is being imposed from outside' including by governments, bureaucrats and universities, although other participants argued that the situation was changing. They suggested that research within the VET sector, by VET participants, should be increased; and that such research is more likely to be implemented.

Secondly, it was noted that the session, while raising a range of different forms of knowledge, of use, of linkages and of settings (both research, policy and practice settings), had not provided much definitive guidance on the balance between them. Since resources are limited and not all desirable objectives can be met, what priority should be given to particular research activities? There was some suggestion that an undue focus on short-term, instrumental, commissioned research, with strong influence from users, could in the longer term undermine the developing knowledge base and be counterproductive for better policy or practice in VET.

Thirdly, it was noted that in the United States the private foundations, although they represent only a small proportion of total research funding, nevertheless play an important role in funding good quality but unpopular or unfashionable research: they can be applied or more fundamental studies which tend to be "very much out of vogue" with powerful groups at the time. But competent and experienced researchers want to do it and peer review supports it. It is important to keep the portholes open for "the unexpected", "the critical" and "the dubious ducks": "the naysayers and the doubters should be kept in research".

Session 4 Research and Researchers' Perspectives: From the Viewpoint of Other Sources of Research.

Robert Bluer[1] **Speaking Notes**

This session considers the impact of VET research from the viewpoint of other sources of research. These perspectives may be important because they come from people who are often considering how VET research may be of use to them in special contexts.

For example, the formal inquiry process will typically commission research as well as drawing upon existing research. Those involved in guiding the inquiry process may be in a position to judge the influence or impact of VET research. They may be able to say how much existing research is useful and valuable in relation to answering terms of reference or whether the process is so circumscribed as to require new work.

Similarly, expert advisers to government, or to other organisations and corporations, may or may not be aware of existing research and the way it can be used and shaped to assist the process. Working as an expert adviser to government will often require close contact with the bureaucracy. This could provide another perspective on how government departments use research.

The impact on VET of research in various disciplines, especially from the perspective of the academic, could provide insights into the value of current research and research in progress. Even in terms of education research, VET research is a comparative newcomer. How it fits with the current education researchers' paradigms, if at all, could be instructive.

Finally, private consultancy in education and training is now a large and growing business; one in which the universities themselves are heavily involved. To what extent is VET research drawn upon and valued in this particular context?; one which often requires quick, if not dirty, work.

---

[1] Private consultant in education and training. Formerly, Counsellor to the National Board of Employment, Education and Training.

Session 4 Research and Researchers' Perspectives: From the Viewpoint of Other Sources of Research.

Don Anderson[1] **Spoken Comments**

By its nature, research cannot bring matters to closure: only decisions can bring closure. In the case of the report on ACT secondary colleges the report's recommendations were accepted by government. The government's wishes were legitimated by the research undertaken for the inquiry.

There can be a wide range of reasons to establish an expert inquiry, including: to buy time on a contentious issue; to placate significant pressure groups (even to neutralise them); to legitimise decisions the Government wishes to take in any case; to distance decision making authorities from potentially difficult decisions; or from a genuine view that the quality of dicision making would be improved.

The formal inquiry is a major way of proceeding to involve research (and much else) in decision making. It can draw on research already undertaken; it may be able to commission specific research in relevant areas; it can seek research information from others through submissions or public hearings; it can employ consultants and its own research staff. Anderson noted that research can be extensively drawn on by informal as well as formal methods, for example, when the chairperson or committee members are researchers or conversant with research and thinking in the relevant areas.

[1] Don Anderson kindly agreed, at short notice, to provide some comments in relation to the formal inquiry process, given that Barry McGaw was detained in Sydney finalising his report to the NSW Government. A relevant paper prepared by Professor McGaw is reproduced after this contribution: it was available for, but not distributed at the symposium. Professor Anderson is at the Centre for Continuing Education in the Australian National University, Canberra.

Session 4 Research and Researchers' Perspectives: From the Viewpoint of Other Sources of Research.

Barry McGaw[1] **Prepared Paper**

NATURE AND FUNCTION OF EDUCATIONAL RESEARCH[2]

The term 'research' is so widely used these days that it has almost lost its currency. It is used by primary school children to describe information gathering in a library, by adults in virtually every walk of life to describe any activity in which they are finding out something they did not know already, regardless of how many people might already know it, and by professional 'researchers' as a specialist term to cover a great variety of activities.

For any serious discussion, however, we must claim specialist use of the term 'research', but then make clear what will fit under the term and what subclassifications we might wish to use. The title of this session invites such a discussion.

CHARACTERISING EDUCATIONAL RESEARCH

Broad definition of research and development

The Organisation for Economic Co-operation and Development (OECD) conducts regular surveys of research activities, but focuses more broadly on research and experimental development which are defined in the Frascati Manual as:

> creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications (OECD, 1992, p.29).

The key distinguishing characteristics of research and development are *originality* and *investigation* as a primary objective. Under this definition, the Frascati Manual excludes:

- education and training, except for postgraduate students' research and its supervision;
- scientific and technical information services;
- general purpose data collections;
- policy related studies such as the analysis and assessment of existing programs and the work of legislative commissions of inquiry; and
- testing and standardisation.

---

[1] Professor McGaw is the Director of the Australian Council for Educational Research, Melbourne.

[2] Invited address presented to Jubilee Conference of the National Foundation for Educational Research in England and Wales, Windsor, England, 2-4 December 1996.

Where would national or international programs to monitor student achievement fit, for example? Are they to be seen as 'general purpose data collections' in whole or in part? Should national monitoring programs be considered 'research and development' in the initial years as novel systems are developed and implemented and then be removed from the category once the program becomes established? Should the 'horse-race' part of international surveys be excluded and only the exploration of relationships between achievement levels and other variables be included?

Some investigative activities common in education would be excluded. Applying well-established techniques to problems, such as in the diagnostic testing of children with learning disabilities, would be excluded, and indeed this example is explicitly identified in the Frascati Manual as a case for exclusion (p.34). If the data from such tests were collected as part of a study of the links between other variables and learning disability, then the testing component would constitute research and development.

The OECD definition and its associated exclusions may be of little immediate relevance in a conference on educational research but non-trivial in other contexts. Both national surveys of research and development activities and the OECD surveys which draw upon them document the extent of national investment in educational research and development, with the OECD definition and its exclusions determining, or influencing, what is counted. In addition, the OECD education indicators reports in the *Education at a Glance* series will also now include indicators of national investment in educational research and development established on a similar basis.

Subclassifications of research and development

The Frascati Manual defines three main subcategories of research and development activities:

- *Basic research:* experimental or theoretical work undertaken primarily to acquire new knowledge, without any particular application or use in view;
- *Applied research:* original investigation undertaken to acquire new knowledge but directed primarily towards a specific practical aim or objective; and
- *Experimental development:* systematic work, drawing on existing knowledge, directed to produce new products, processes, or services, or to improve existing ones substantially.

An education-specific example is provided by the Frascati Manual (Annex V), distinguishing these three types of research and development in the field of reading:

- *Basic research:* study of the reading process, for example an investigation of how human visual systems work to acquire information from symbols such as words, pictures and diagrams;
- *Applied research:* study of the reading process for the purpose of developing a new teaching method; and
- *Experimental development:* development and testing of a special reading program.

For the Australian national research and development surveys, the Australian Bureau of Statistics subdivides *basic* research into *pure basic* and *strategic basic* research according to the following definitions:

- *Pure basic research:* research directed into specific broad areas in the expectation of useful discoveries; and
- *Strategic basic research:* research providing the broad base of knowledge necessary for the solution of recognised practical problems.

Education as a field or discipline

The OECD classifications are generic in the sense of being intended to apply to all fields of research and development. When it comes to education, there is not only the question of how these definitions might be applied, but also the question of what research and development should count within the category of *education.*

My preference is to see *education* as a field and not a discipline. This preference arises from the diversity of what, on any reasonable grounds, could be claimed to be educational research and development. Diversity is evident in the substantive questions addressed, ranging from learning and teaching to the politics of education; in the scope of the questions, ranging from learners and teachers to systems; and in the methodologies used, quantitative and qualitative. It is also clear that educational research and development is informed by a variety of disciplinary perspectives. What makes a particular research and development activity *educational* is its focus on the field of education.

Taking education to be a field of inquiry and not a discipline is not without problems, however, since the boundary of the field will inevitably be somewhat vague, wherever it is drawn. This can be illustrated by responses to the Australian Bureau of Statistics' surveys of research and development activities.

In those surveys, the Bureau uses not only the subclassifications by types of research (pure basic, etc) but also subcategories of *Field of Science* and *Socioeconomic Objective,* the latter referring to the area of expected national benefit from the research. In the survey for 1988-89, expenditure on educational research and development (in March 1992 prices) was reported to be $70.3 million for education as a socioeconomic objective, but $63.6 million for education as a field of science. The latter figure was lower because it excluded expenditure on educational research and development incurred outside of the field of education by researchers declaring their allegiance to some other field in the social sciences or humanities, usually a discipline.

This kind of distinction is not possible in the OECD reports, since OECD includes education in its *Fields of Science and Technology* but not in its *Socioeconomic Objectives.* That is, the OECD classification includes education only in the list of 'disciplines', while the Australian inclusion of it in both subclassifications allows the

possibility of work having disciplinary orientation and a commitment to the field of education.

Discipline research in educational settings

The term *educational research* is best preserved for work in which the central organising feature is a dominant commitment to the field of education. If the research focus is the concerns of a discipline, the work ought to be seen as related to that discipline and so named. The research may be relevant to education but still not be educational research.

There are numerous examples of research relevant to education, on which educational researchers and even policy makers and professional practitioners may draw, without these examples needing to be named as educational research. Within the discipline of psychology, research on learning, on the nature and development of expertise, on human development, and on attitude formation can all fall within the category of *educationally relevant* research without being called *educational* research. Within the discipline of sociology, research on social class and socioeconomic status can be relevant to education and can crucially inform educational research on the social reproductive role of schools. Within the discipline of politics, research on policy making in federal systems, even work on educational policy making, can be relevant to education without being educational research under a definition which demands that the prime focus be education and not the discipline.

There are many professional researchers in educational research institutions, particularly university faculties of education, who are inclined to honour a disciplinary perspective from which they work as their *raison d 'etre as* researchers rather than the field of education, even though they may claim their work to be relevant to education. For them, the appropriate course would be to transfer to the relevant disciplinary department.

Links with policy and practice

Demanding of educational research that it have a central commitment to the field of education does not resolve, in any immediate or straightforward fashion, the manner in which the research endeavour contributes to the field. To do that requires consideration of the manner in which research can link with policy development and professional practice. It also opens a significant epistemological debate.

Academic and professional concerns intermingle in educational research. Academic concerns typically range across the purposes, procedures and reporting of educational research. Professional concerns tend to be practical. They draw upon educational research as a body of ideas from which to generate new solutions, not new knowledge. In some cases, policy makers and practitioners seek enlightenment to inform their action, in other cases they seek recipe knowledge to prescribe their action.

Educational research is thus expected to generate different kinds of knowledge, reflecting the different questions with which different groups approach it. While they may all have a connection with the fields of policy and professional practice, there is not the

same immediate concern in all cases with implementation, or even identification, of desired changes. The reason is that the sources of their questions vary. Sources of research questions can include:

- intellectual curiosity;
- hypotheses arising from theory;
- personal concern about particular problems; and
- requests from policy agencies (Anderson, 1986).

Another way of thinking about the differences between researchers and those professionally engaged in the practice of education, either as policy makers or as teachers, is in terms of their professional perspectives. Key differences are summarised in Table 1.

Table 1: Differences in perspective of researchers and professional practitioners

Researchers	Policy makers and practitioners
willing to work on parts of problem	complex, applied problems - holistic, context-based
interested in raising new questions	interested in facilitating policy and practice choices
preference for critical analysis and critique	sometimes a preference for legitimating choices already made
professional rewards (promotions criteria) emphasise basic research	professional rewards depend on development and implementation of changes in policy and practice

The epistemological debate in educational research is more fundamental than the differences in perspective of the community of researchers and the communities of policy makers and practitioners. It is to do with the manner in which knowledge is gained and that, in turn, depends on how educational research is conceived. Four long-term epistemological tensions are evident in educational research, with it conceived as:

- either a natural or an interpretative science;
- either a laboratory or a practical science;
- either a universal or a local science;
- either serving deliberative or practical ends (McGaw et at., in press, p.4).

Much of the epistemological debate in the past has been advanced as though there were a single answer, with the result being successive epistemological and methodological hegemonies. When the positivist tradition was dominant, natural science conventions were mimicked and a pre-eminent role assumed by quantitative psychological research, cast primarily in the experimental mode with treatment and control conditions. More recently, as the interpretative tradition has become more dominant, a stronger place has been given to research conventions drawn from sociology and anthropology.

Natural science investigation

The natural science tradition has not disappeared entirely. It continues on the assumption of a natural, lawful reality to be discovered, pursuing it through controlled experimentation and the quasi-experimentation afforded by semi-controlled studies capitalising on natural covariation and using statistical adjustments to control for pre-existing differences by casting questions in an 'other things equal, what it?' form.

In the natural science tradition, the experimenter maintains an objective distance from subjects. Interpretations are expected to be verifiable by an independent data analyst and the data gathering itself replicable within sampling error in independent circumstances.

Whether the conclusions are anticipated to be universal or local depends on the extent to which the effects being investigated are understood, or expected, to be free of cultural influences. In his famous address to the American Psychological Association on the receipt of a Distinguished Scientific Contribution Award, Cronbach (1975) introduced the possibility of local laws as the product of psychological research in the natural science tradition and proposed systematic investigation of interactions of other variables with local conditions. The most notable work that flowed from his proposal was the investigations of aptitude-treatment interactions that he subsequently reviewed (Cronbach and Snow, 1977). A more elaborate method for investigating interactions of context with research findings was provided by meta-analysis (Glass, 1976).

Connections with educational practice from this research tradition first proceeded in the belief that experimental, or quasi-experimental, conditions shown to be efficacious could be engineered into programs or materials to be used by professional practitioners. Greater understanding of the complexities of the domain of professional practice led to more modest expectations of influence, but not an abandonment of the principle of the efficacious experimental treatments serving as a guide to professional practice. There remains an expectation that good research will help to shape planned interventions.

In some cases, implementation itself becomes the subject of experimental investigation. Good research on learning usually leads on to instructional research which is then seen as providing essential validation of the conclusions of the learning research. On a larger scale and usually in a quasi-experimental mode, evaluation studies investigate the impact of programs in complex settings.

Interpretative studies

Research in the interpretative tradition reflects new ways of thinking about knowledge and competence in human practice. It sees knowledge as actively constructed by individuals, but not in isolation from the communities in which they develop. That is seen to be true of learners who might be the focus of professional practice and research, but is seen also to be true of researchers and professional practitioners.

Individuals are seen to participate in communities of discourse which shape the behaviour of all participants. The research community has a scholarly discourse within which theories are developed and accepted modes of challenging theories established. The communities of professional practitioners and policy makers also each develop a common language which shapes individuals' interpretations of their own practice and of the possibilities of their work.

Research in the interpretative mode usually seeks to understand not just what people do, but how they derive meaning from what they are doing. Much interpretative research focuses on the nature of discourse in various communities of practice. In education, various studies are now charting the language of classrooms, with particular attention to the ways in which students are initiated into the questions, points of view, expectations of evidence, and forms of verification of different disciplines. The policy development process is being subjected to similar analyses. (See McGaw et al., (in press) for a discussion of the interpretative tradition.)

Interventions and evaluations

Another body of educational research takes social change as its object of inquiry, and seeks both to evaluate the overall effectiveness of interventions and to determine which aspects of an intervention, singly or in interaction, are responsible for positive or negative effects. In educational research, the interventions are likely to be programs of teaching or curriculum change, but they may also be broader policies about, for instance, patterns of funding or selection of students.

Intervention and evaluation research calls for careful observation and measurement within either a natural science or interpretative framework. Because the objects of study are complex social interventions, attention must be paid to specifics of context, including historical and cultural factors that may influence the implementation of planned interventions.

The focus may be deliberately designed interventions, sometimes designed by the researchers themselves. In such cases, control or comparison groups are typically used to estimate the effects of the intervention. Various statistical adjustments may also be used to control for possible confounding or interacting variables.

In other cases, natural variations in educational programs can provide comparisons of different interventions. Comparisons are possible between countries, states, schools or even individual teachers. Inferences from these non-experimental studies of natural variation depend on the use of increasingly sophisticated statistical procedures.

REVIEWS OF EDUCATIONAL RESEARCH IN AUSTRALIA

Three reviews of educational research have been conducted in Australia in recent years under the auspices of the Australian Research Council. One provided a review of the then state of educational research and proposed a variety of policy changes in relation to the research enterprise (McGaw et al., 1992) and a second provided a similar review

focused more narrowly on research in vocational education and training (McDonald et al., 1993). The third reviewed the outcomes of educational research projects funded under the Australian Research Council's Large Grants Program in the period 1989 to 1993 (McGaw et al., in press).

It is instructive to reflect on the findings of these reviews in terms of the analysis of the nature of educational research and development presented in the preceding sections of this paper. Given the strong links many Australian educational researchers have with counterparts in other countries, it is likely that the Australian experience will be similar to that in other places.

Strengths

By some measures, educational research in Australia was shown in the strategic review to be in good shape. From the major national funding agency for basic research, the Australian Research Council, education attracted 15 per cent of large grant funds allocated to the social sciences in 1992. This proportion was exceeded only by psychology (40 per cent) and economics (23 per cent), and was well in advance of sociology (7 per cent) and geography (6 per cent). In funding for new projects, education was second after psychology (McGaw, 1992).

Funding for educational research, however, was relatively low considering the size of the education sector within higher education and appeared to have been associated with a relatively low rate of applications from education academics - about 1 per 50 full-time equivalent education academics compared with about 1 per 25 full-time equivalent non-education academics in the social sciences. The relatively low application rate reflected the history of much of the education sector in higher education - originally in teachers colleges and then in colleges of advanced education without a research brief or infrastructure funding for research and only in the early 1990s transferred fully into the university sector. This has had some impact on the profession's view of research as well, with the great majority of teachers trained in institutions and by staff without any substantial engagement with research. That is very different from the education environment in fields such as medicine and psychology.

A great deal of the educational research is of high quality. This judgment was confirmed by a systematic analysis of the outcomes of the education research projects that gained the highest levels of Australian Research Council funding over the five-year period 1989-93. Work from these projects was widely published in international journals and the researchers had formed strong links with leading overseas researchers in the specialties.

Weaknesses

Despite these strengths, there was other evidence of serious problems. The whole educational research enterprise seemed at the time of the strategic review in 1992 to be a fragile resource requiring some reorientation and increased support. Areas of concern evident in submissions to the review included:

- education administrators and practitioners perceiving much educational research to be irrelevant to their concerns;
- educational researchers perceiving a lack of support for and interest in their work from government agencies and the higher educational sector;
- there being little effective dissemination of research;
- research activities being poorly coordinated and thinly spread;
- funding being low relative to the size of the education sector (0.35 per cent of education expenditure being allocated to research and development compared with 1.40 per cent - and soon after 2.0 per cent - of health expenditure being allocated to research and development); and
- there being little planning for training researchers.

Researchers seemed generally isolated from one another, working as individuals on their own projects, and certainly isolated from the communities of policy makers and practitioners. That was not true for all, however, as the subsequent review of the outcomes of the large grants revealed. Much of the work on those large grant projects involved coherent teams of collaborators, sometimes in different locations, but working together in a sustained way. A good number of them had also forged effective links with policy makers and practitioners.

EXAMPLES OF EDUCATIONAL RESEARCH AND DEVELOPMENT

So far I have offered a general description of the nature of educational research and development and a brief reflection on the conclusions of several substantial reviews of educational research in Australia. I now turn to three examples of current Australian educational research which have a strong standing in the research community and well-developed connections with the communities of policy makers and practitioners.

There are other examples that I could have chosen, of course, but these will illustrate the point that there is no single paradigm for effective research nor any single epistemology that can describe the links between research and professional practice.

Cognition to learning to instruction

The first example is of research on learning, derived from a strong theoretical model of cognitive processes and leading on to instructional research and successful implementation in workplace training.

Sweller has developed a theoretical model of problem solving and learning which accounts, in terms of cognitive load, for the variable levels of success of different instructional strategies. The model grew out of extensive studies of learning (e.g. Sweller, 1983, Sweller and Levine, 1982).

Subsequent work established that some standard techniques for teaching problem solving in mathematics, such as working numerous examples, can be very ineffective because the

cognitive demand of the problem solving tasks themselves is often so great that insufficient cognitive resources can be directed to learning the structure of the problems and thus acquiring the intended general problem solving skills. This led on to the identification of more effective teaching strategies that reduce cognitive load and direct cognitive effort to learning rather than to extraneous activities, and then on to the definition of the characteristics that those strategies must have. For example, studying worked examples in algebra can produce faster and more effective learning of problem types and problem solving strategies than solving sets of problems (Sweller and Cooper, 1985). This is not true for all worked examples and the research provides both a theoretical explanation of why it is not and a delineation of the characteristics of worked examples that will be effective (Ward and Sweller, 1990).

Sweller extended the application of his model of learning by working in industry, developing instructional programs for staff to improve the rate at which operational skills are acquired. New techniques for formatting instruction, which better manage the cognitive load of the learners, have proved highly effective (Sweller et at., 1990; Chandler and Sweller, 1991).

It is interesting to note that, while Sweller's application of his work to mathematics education was not warmly embraced by some mathematics educators, as illustrated by the reception for a presentation he made to the Mathematics Education Research Group of Australia, his work on industrial training has been speedily taken up. The company in which he and Chandler worked contributed substantially to the funding of the research and development and then collaborated in a successful submission for further research funding from the Australian National Training Authority Research Advisory Council. That further work has demonstrated that the use of redundant information in multi-media presentations (e.g. presenting the same information as text to be read and in audio presentation) inhibits learning by increasing the cognitive demand of the learning task without benefit.

Sweller's work represents a sustained effort within the tradition of natural science investigations. It has clear and strong connections with aspects of professional practice and has provided systematic evidence of the efficacy of instructional strategies based upon it.

Longitudinal study of individual progress

The second example is of a longitudinal study, following successive national samples of individuals from upper primary or lower secondary schooling to adult life, with annual documentation of education and labour market participation. It is work in the tradition of quantitative sociology, fitting linear models to data to explore the links between a variety of educational and social background factors and subsequent educational performance and workforce participation.

Using samples of individuals born in 1961, 1965 and 1970, Williams and his colleagues documented changes in patterns of participation in the final years of secondary schooling and in higher education of groups making the transition to higher education at the

beginning, in the middle and at the end of the 1980s (Williams, 1987; Williams et al., 1993).

This work showed the broadening social base of the student cohort continuing in education as participation rates rose, but documented the continuing strong influence of socioeconomic factors on completion of secondary education and participation in higher education. In these respects, it provided direct evidence on the effectiveness of policies of the Commonwealth government intended to increase equity in participation in postcompulsory education and the Commonwealth drew heavily on the work in its own private and public evaluations of its policies (Commonwealth Department of Education, 1987).

This research also demonstrated that private schooling has an influence on school completion and access to higher education which is not explicable in terms of the relatively select nature of the students enrolled in private schools, that is, not explicable in terms of social characteristics or prior educational achievements of the individual students but rather attributable to the schools themselves. Those conclusions generated an ongoing debate about the influence of school type on subsequent success.

More recent work with this longitudinal database, using additional national samples of individuals born in the years up to 1980, has provided new evidence about increased equity in the Australian education systems. This work shows that family socioeconomic status has had a declining influence over a 20-year period on students' performance levels in reading comprehension and numeracy (Marks and Ainley, 1996).

These *Longitudinal Surveys of Australian Youth* have not had any direct connection with professional practice in schools. Rather, the research has had a clear connection with policy makers, and a direction which is not one-way. Policy makers have defined the research questions with which to come to the data and, increasingly, are playing a role in shaping the annual data collection in anticipation of their own subsequent policy questions. The new federal Minister is regularly commissioning analyses of the database to investigate policy options that he is exploring.

Linking researchers with practitioners

The third example is of action research in which professional practitioners and academic researchers are engaged as collaborators. It is a project sponsored by government and teachers' unions and funded through a national professional development program. It is based on a view that professional development of teachers will be enhanced if they are enabled to reflect critically on their own professional practice.

Action research aims to help practitioners investigate the connections between their own theories of education and their own day-to-day educational practices; and to integrate the research act into the educational setting so that it can play a direct and immediate role in the improvement of practice (Carr and Kemmis, 1986).

In action research, practitioners are encouraged to treat their own educational ideas and theories, their own work and work practices, and their own work settings as objects for analysis and critique. On the basis of careful reflection, they may uncover theoretical ideas which turn out to be unjustified, ways in which practices shaped by habit or tradition have become irrelevant, and how the settings in which they work place obstacles in the way of attaining educational goals.

The particular project funded under the national professional development program operated under the descriptive title, *Innovative Links between Universities and Schools for Teacher Professional Development.* It has provided the opportunity for academic researchers in 14 universities to work in partnership with practising teachers on a whole-school basis in around 100 schools (Yeatman and Sachs, 1995).

Sachs describes ways in which the research interests and perspectives of the university and school-based personnel are complementary and mutually supportive (Sachs, 1996). She points out that teachers are concerned primarily with understanding and improving practice and so have relatively context-specific interests. What they gain from the researchers is cross-contextual research information which enables them to situate their reflective practice in a wider context.

Academic analysts not only become directly acquainted with what it means to engage in continuous improvement in teaching and learning in a specific context, but become aware of what teachers regard as important and relevant and why. This helps to ensure that when academic communication is oriented toward practitioners it is informed about the needs and requirements of practitioners and practice settings.

Academic research, on the other hand, is concerned with validity and generalisation and so is essentially cross-contextual, whether at a micro or macro level. While this research is not focused on *doing* and *improving* it is concerned with understanding the processes of action and improvement. Exposure to the day-to-day realities of school life through collaboration with professional practitioners seeking to reflect critically on their own practice in order to improve it enriched the academic researchers' own understanding of practice and tested the relevance of their cross-contextual information and theories.

Participants reported through a formative evaluation that the relationship between teachers and academic associates was mutually beneficial when it was an equal relationship and best when the participants viewed each other as learners in the project (Yeatman and Sachs, 1995). With this approach the issue of dissemination is entirely redefined. There is no remote audience for research with whom effective communication must be established. There is collaboration on what the research questions are and on how to address them. There is divergence on the scope and level of generality of the conclusions sought, but neither is seeking an interpretation for the other to use.

STRENGTHENING EDUCATIONAL RESEARCH AND DEVELOPMENT

The analysis of the nature of educational research and development, the reviews of the educational research in Australia and the three varied examples all point to ways in which

the research enterprise might be strengthened. This will need to involve changes to the research enterprise itself and changes to the linkages between the research community on the one hand and the communities of policy makers and professional practitioners on the other.

Changes in research effort

Maintaining eclecticism

One important message, from my point of view, is the need to maintain an eclectic approach. Paradigmatic or methodological hegemony will limit and stultify the research and development enterprise. The balance may well be shifting from 'natural science' to 'interpretative' models of research, but there continues to be significant research of both a basic and applied kind in the natural science tradition which informs our understanding of educational processes and which can introduce and validate new practices. Sweller's work is an example.

The review of the outcomes of the work of the 20 educational research teams funded between 1989 and 1993 under the Australian Research Council's Large Grant program found research fitting all three of the models outlined earlier, viz. 'natural science', 'interpretative' and 'interventions and evaluations', as shown in Table 2 (McGaw et al., in press).

Table 2: Distribution of funding by research model for each research team

Team	Natural Science	Interpret ative	Interv & evaluatn	Total	Team	Natural Science	Interpret ative	Interv & evaluatn	Total
1	215,000			215,000	11		140,000		140,000
2			210,000	210,000	12	67,500	67,500		135,000
3	82,500		117,500	200,000	13	125,000			125,000
4	95,000		95,000	190,000	14		110,000		110,000
5		85,000	85,000	170,000	15	105,000			105,000
6	160,000			160,000	16		100,000		100,000
7	150,000			150,000	17	100,000			100,000
8	75,000	75,000		150,000	18	90,000			90,000
9	145,000			145,000	19		80,000		80,000
10	140,000			140,000	20	80,000			80,000

The classification in Table 2 shows that the dominant model in the work of the research teams was the natural science model, with almost 60 per cent of all funding going to projects using this model. Research in the interpretative tradition attracted almost 25 per cent and intervention studies less than 20 per cent.

This may, however, be an underestimate of the overall influence of the interpretative model in educational research. Several of the research teams reviewed shifted over the period from 1989 to 1993 toward more interpretative frameworks. Given general trends

in the social sciences, it is likely that increasing numbers of the best education scholars may make similar moves, perhaps bringing to interpretative research more use of quantitative methods than has been the case in the past.

Concentrating effort

A second, somewhat controversial, strategy would be to concentrate the research effort to some extent. This will permit more sustained work by those most likely to deliver but would, of course, be at the expense of others who might have hoped for support for at least some aspects of their work.

In circumstances of limited resources for research, concentrating funding on fewer researchers rather than spreading it thinly will involve picking 'winners' in whose work to invest. It would be important then to have a rigorous evaluation of the outcomes of the funding so that resources can be redirected over time if performance does not justify continued support.

Some research funding programs appear to offer renewal of funding on the basis of the quality of each round of applications for further funding, with little evidence of the results of previous funding other than self report in the next-round application.

Building multidisciplinary teams

The requirements of eclecticism and concentration of effort can be brought together in the development and funding of multidisciplinary teams to work on educational issues. Enriched understandings can come from the variety of substantive and methodological perspectives a multidisciplinary team can offer.

There was some of this in the 20 teams whose work was reviewed in Australia. A team reviewing the development of youth policy over several decades consisted of a historian, a political scientist with research interests in social class and international social movements, and a researcher with a background in youth work and youth policy. A team concerned with mathematics learning consisted of a university mathematician and teacher and a cognitive psychologist. Other teams were more homogeneous, however, concentrating expertise and bringing the benefit of broader experience and a capacity to share in some ways more deeply than a multidisciplinary team.

Improving links with policy making and practice

If the unique feature of educational research is its engagement with a field of policy and professional practice, then work needs to be done to build and sustain good links between the research community and the communities of policy making and professional practice.

Setting key agenda issues collaboratively

One way to work at this is to have the research agenda set collaboratively. This can be done for the work of an individual team, as it is currently being done for the *Longitudinal Surveys of Australian Youth*, or it could be done in nominating some priorities areas within a national research enterprise or even in setting a national research agenda.

A good example of the limited imposition of national priorities in the context of a research funding program which could accommodate other non-thematic work is provided by the Australian National Training Authority's national, competitive research funding program set up following the recommendations of the review of research on vocational education and training (McDonald et al., 1993). The priorities have been established by a group representative of all three communities. Substantial funding has been provided to establish a few centres focused on particular priority areas, some large projects have been funded in other priority areas and a variety of large and small projects have been funded in the priority areas as well as outside them.

Establishing personnel exchanges

Apart from active collaboration from different home bases, as in the Innovative Links Project bringing together school and university personnel to work on shared projects while maintaining their institutional affiliations, personnel exchange programs can build links in new ways between the separate communities.

Building incentives for engagement with policy and practice

Perhaps the most important thing to do in pursuit of collaboration is to build incentives which encourage it. The Australian National Training Authority Research Advisory Council gives priority in funding to project teams in which there will be genuine collaboration among team members from the different communities. That Council also ensured that its funding program was accepted as one of the competitive programs from which winning of grants brings additional research infrastructure funding to universities from the university funding agencies.

More generally, work needs to be done to reduce the impact of the different interest and reward systems identified in Table I. Unless they are reoriented in some way, the interests of the different communities will not intersect and, worse, may even be in conflict.

REFERENCES

Anderson, D. (1986). "Where do the questions come from? For whom are the answers intended? An exploration of research and policy", *Australian Educational Researcher*, 13, 5-25.

Carr, W. K., 5. (1986). *Becoming critical: Education, knowledge and action research.* London: Falmer.

Chandler, P. and Sweller, J. (1991). "Cognitive load theory and the format of instruction", *Cognition and Instruction, 8,* 293-332.

Commonwealth Department of Education. (Ed.). (1987). *Support for staying on at school. The role of student assistance in postcompulsory secondary education and technical and further education.* Canberra: Australian Government Publishing Service.

Cronbach, L. J. (1975). "Beyond the two disciplines of scientific psychology", *American Psychologist, 30,* 116-127.

Cronbach, L. J. and Snow, RE. (1977). *Aptitudes and instructional methods: A handbook for research on interactions.* New York: Irvington.

Glass, G. V. (1976). "Primary, secondary and meta-analysis of research", *Educational Researcher, 5, 3-8.*

Marks, G. and Ainley, J. (1996). *Reading comprehension and numeracy among junior secondary school students in Australia* . Camberwell, Victoria: Australian Council for Educational Research.

McDonald, R., Hayton, G., Gonczi, A. and Hager, P. (1993). *No small change: Proposals for a research and development strategy for vocational education and training in Australia.* Canberra: Vocational Education, Employment and Training Advisory Committee.

McGaw, B., Boud, D., Poole, M., Warry, R. and McKenzie, P. (1992). *Educational research in Australia.* Canberra: National Board of Employment, Education and Training.

McGaw, B., Hamilton, D., Keeves, J. and Resnick, L. (in press). *Education: Evaluation of the Australian Research Council Large Grant Funding Program 1989-1993.* Canberra: Department of Employment, Education, Training and Youth Affairs.

Organisation for Economic Co-operation and Development (OECD). (1992). *Proposed standard practice for surveys of research and experimental development (Frascati Manual).* Paris: OECD.

Sachs, J. (1996). *Renewing teacher professionalism: What role for the university?* Paper presented at the Alexander Mackie Lecture, University of Sydney.

Sweller, J. (1983). "Control mechanisms in problem solving", *Memory and Cognition, 11,* 32-40.

Sweller, J., Chandler, P., Tierney, P. and Cooper, M. (1990). "Cognitive load as a factor in the structuring of technical material", *Journal of Experimental Psychology: General, 119,* 176-192.

Sweller, J., and Cooper, G. (1985). "The use of worked examples as a substitute for problem solving in learning algebra", *Cognition and Instruction, 2,* 59-80.

Sweller, J., and Levine, M. (1982). "Effects of goal specificity on means-end analysis and learning", *Journal of Experimental Psychology: Learning, Memory and Cognition, 8,* 463-474.

Ward, M., and Sweller, J. (1990). "Structuring effective worked examples", *Cognition and Instruction, 7,* 1-39.

Williams, T. (1987). *Participation in education.* (Vol. 30). Hawthorn, Victoria: Australian Council for Educational Research.

Williams, T., Long, M., Carpenter, P. and Hayden, M. (1993). *Higher education in the 80s.* Hawthorn, Victoria: Australian Council for Educational Research.

Yeatman, A. and Sachs, J. (1995). *Making the links: A formative evaluation of the first year of the Innovative Links between Universities and Schools for Teacher Professional Development,* Perth, Western Australia: Murdoch University.

Session 4 Research and Researchers' Perspectives: From the Viewpoint of Other Sources of Research.

Bruce Chapman[1] **Speaking Notes**

Two sets of material were prepared by Professor Chapman for the symposium. Part A is what he spoke to at the time, while Part B sets out some points which he felt might be helpful for the wider Impact Project. He stressed that he approached the issues under discussion as an economist, as an academic and with an interest in policy, but without having done much detailed research work on vocational education and training. He drew on his experience and sought to draw out common features, even though the subject matters were quite different: development of the Higher Education Contribution Scheme (HECS) and the Job Compact, a Federal Government initiative which provided a job guarantee for long-term unemployed people. (Editor's note).

PART A

Practical Lessons Linking Research to Policy

1. Make it simple to present: "their simplicity is their power":
   (a) Long term unemployment projections: if the economy does badly, and the government did nothing, long term unemployment (LTU) would rise greatly. Even if the economy did reasonably well, LTU would not fall much. The projections demonstrated in the simplest way that LTU was a major problem.
   (b) Graduate relative salaries: a very simple picture which is reflected in virtually all advanced countries. A clear advantage: about $600-$700,000 extra earnings over the life cycle compared to non-graduates.

2. Explicitly consider the distributional consequences: in economic terms one needs to consider who gains and who loses:
   (a) Who are the long term unemployed?: they tend to be the particularly disadvantaged groups and individuals.
   (b) Who goes to university? They are disproportionately from advantaged socio-economic backgrounds; while university graduates earn more than the average worker. If your father was in a professional or managerial occupation your chances of enrolling in higher education in the 1980's were four times greater than if your father was in a less advantaged socio-economic occupation. If your parents were from an unskilled or semi-skilled background, 22% of the university cohort were from that background, whereas if the proportion equalled that in the population as a whole, it would have been about 50%.

[1] Director of the Centre for Economic Policy Research at the Australian National University, Canberra.

3. Be sensitive to the budgetary implications. At present there are "fiscally parsimonious governments" throughout the OECD. They want to be seen as low tax, they want to be seen as low spend governments.

   (a) The job compact calculations were approximately revenue neutral overall. That debate within the process was quite important in the adoption of the policy, especially with Finance and Treasury.

   (b) With hypothecation of HECS revenue the extra funds were all to be used for growth in the higher education system. There were big queues for entry into higher education at the time. Hypothecation was important in relation to the politics of the public debate. Over 1989-95 the higher education system grew by about a third.

4. Stress inherent fairness:

   (a) All taxpayers pay for university but only 15% attend. Is this fair? And students only had to repay the loan when they were earning above the average level of income.

   (b) The long term unemployed lose in a recession, but don't gain in the recovery.

PART B

Practical Lessons from the Direct Policy Experience of a Researcher

A. For researchers wanting to influence the policy process:

   (i) be very sure that your conclusions are correct;

   (ii) be aware of the broader politics, and be able to illustrate how the specific project fits into the bigger picture;

   (iii) be explicit about efficiency and distributional impacts; and

   (iv) take account of (or at least think about) the broad budgetary implications (ie. cost) of initiatives.

B. For researchers directly involved in the policy process:

   (i) respect the skills and professionalism of senior bureaucrats - in many areas they will know much more than the consultant (ie. you);

   (ii) know the agenda of the Minister:
   - if it is consistent with research illustrate this in presentationally uncomplicated ways;
   - if it doesn't seem correct in a research sense, point this out (in context);

   (iii) take notice of bureaucratic political matters (eg. Department of Social Security v Finance v Department of Employment, Education and Training);

   (iv) present material in ways such that people with no experience can understand the policy point; and

   (v) forget your ego.

Session 4 Research and Researchers' Perspectives: From the Viewpoint of Other Sources of Research.

Terri Seddon[1] **Speaking Notes**

I will comment on the impact of research in VET from the perspective of someone who works between VET and the social science disciplines. This perspective is a consequence of my research on the restructuring of schools and TAFE (SOEP project) and the 'Reshaping Australian Education' project based at the Research School of Social Sciences at the Australian National University. This perspective is supplemented by insights derived from TAFE - University research partnerships and working with students completing doctoral studies in relation to VET.

Section 2.4 in the paper which was circulated to participants prior to the symposium (see Appendix 1) makes the point that disciplines 'influence the problems identified as important, the key questions posed and the techniques adopted to investigate them'.

Disciplines are resources in research. They provide both cognitive and normative resources that enable the researcher to make a particular investigative cut through VET. They shape the approach of the researcher and the conduct of the research. It means that researchers working in different disciplinary frames bring entirely different ways of approaching and understanding the world to VET research and these different approaches offer distinct insights, perspectives and interpretations as resources to VET policy, planning and performance (eg. CEET/SOEP).

In particular historical periods, some disciplinary resources are favoured over others. Currently, theories based on modelling the rational actor are the flavour of the month. Other disciplinary approaches do not disappear; they fall or are pressed out of view. When one approach is favoured while another is out of favour, it does not mean that either has any particular purchase on Truth. One is not right and the other wrong. Rather, they both offer different insights, but some of those insights are sought out, while others are disregarded. These processes play out as a result of the ongoing politics of knowledge within VET and between VET and other agencies.

When a particular research approach is in favour, as particular forms of economics are now, they come to frame the research enterprise and policy, planning and performance in pervasive ways. Some topics get funded over others, some outcomes are preferred. This is what the document refers to as 'ideas in good currency'. These ideas and ways of understanding come to be almost natural 'good sense'. They conform with, and confirm, the commonsense ways of understanding amongst people working within the field.

But policy, planning and performance is limited if 'ideas in good currency' come to colonise the whole of VET research. Such ideas are too comfortable. They do not challenge the orthodoxies. VET needs the insights derived from out-of-favour research approaches, because these insights are the ones that question the commonsense ways of

---

[1] Associate Professor in the Faculty of Education at Monash University.

understanding and doing things. The out of favour approaches illuminate VET differently, highlighting unintended consequences and where problems exist, as well as the glimmer of innovative policy, planning and performance that can open up new opportunities and new solutions to problems.

From where I stand, outside VET, it seems that for many people working in VET the sector is a self-referential universe. This is also evident in school education, but the VET universe is more orientated to industry than schools. It means that people working in VET focus their efforts on their work *in* VET. They are often autodidacts, learning from what they do through trial and error experiences and within the frames and meanings of their particular occupational cultures. The organisational and cultural frames of their occupation provide the major resources for making sense of what is going on, and for translating understandings into action.

But alongside these people working in VET there are other groups of VET workers who do not take VET as their self-referential universe. Particular occupational frames and cultures are not their major reference points. Rather, their referential universes lie in communities beyond education: in disciplinary communities and in communities outside formal education and training provision (such as ethnic, professional or religious communities). For this group, VET is only a site for their broader community work. The occupational frames and cultures of VET do not provide the meanings which enable these educators to make sense of the world. Instead these educators draw resources from their primary referential communities in order to make sense of education. They maintain a critical distance on their work and focus their efforts by working *on* VET as well as *in* it.

VET policy, planning and performance will be enriched if it can be informed by the insights of both groups. Those who work within the organisational and cultural frames of VET often speak with the voice of VET policy and planning, and these voices are often framed by the flavour of the month 'ideas in good currency'. But those who work outside the organisational and cultural frames of VET (either identified in terms of discipline or wider communities) also provide useful resources. They pose questions that can clarify the taken-for-granted frames of reference of VET policy, planning and performance. They can also speak back to policy and planning, setting narratives about actual developments against heuristic or predictive modelling, or best guess orthodoxies.

There is evidence that multiple perspectives on VET do exist and that there is some systemic support for the diversity of views. But the corporatisation of VET also presses in the other direction, disregarding the valuable research and interpretations of those who do not conform to the natural good sense of 'ideas in good currency'.

Following the symposium, reflecting back on it, she reaffirmed certain points:

1. Research is a spectrum of practices that lead toward the production of meaning, understanding and knowledge. This knowledge production can occur on the basis of commonsense understanding; through reflection on action; through

sophisticated data collection and analysis; and through interpretations that are reflective about the conceptual resources drawn on and applied.

2. What differentiates research from any old opinion forming are the conditions, resources and ethical principles that both constitute and constrain the knowledge production process. Conditions include, for example, the time available for research, the authority relations between researcher, researched and research funder. Resources for research are financial, organisational and conceptual. Ethical principles include, for example, commitments to disinterested investigation, to 'telling it like it is', to reflective conceptualisation and to the collective production of and access to knowledge.

3. In these processes of knowledge production, the person 'finding out and interpreting' (ie. the researcher) is the critical technology. People choose their tools to do carpentry - their hammers or screwdrivers - and these tools influence the kind of job that is done. Similarly in research, people choose researchers with different disciplinary and research capacities. These embodied skills and capacities shape the way research is done and the knowledge and understandings that are produced. The formation of a variety of differently constituted researchers is an important aspect in the development of research capacity in VET. It relates to the notion of creating human capital stock.

4. Researchers make knowledge resources available to VET policy and practice. There are dangers when narrow orthodoxies develop, that curtail the speaking or hearing of a wide diversity of knowledge resources. It encourages narrowly based institutional design, limits the generation of future scenarios to which planning can be directed.

5. The current commercialisation of research is changing relationships between policy, practice and research, and the relationships between policy makers, planners, practitioners and researchers. These changing relationships affect the processes of doing research and the processes of speaking about and hearing different knowledge resources (research products). The implications of these changing relationships need to be documented and assessed, so that unproductive stereotypes and divisions between policy makers, planners, practitioners and researchers do not obstruct sensible communication and debate.

6. My sense is that currently blockages between research and policy and practice do exist, and exist particularly in relation to VET, because there is no well-established tradition of research in this field. One blockage is evident in the notion that only VET people should do VET research, and that more distanced researchers have nothing to offer. These unproductive stereotypes are based on associations between research and organisational relationships.

   There is a strong view that VET researchers should be in CORPORATE relations with VET, ie. subject to those who resource and commission research, providing the answers that VET wants.

There is a counter view, evident perhaps most strongly amongst some researchers, that research should be independent of VET, telling truths rather than predetermined answers. This is sometimes read as a CONFRONTATIONIST model in which VET and researchers are opposed.

Yet more sensible than both, is a COOPERATIVE (or, perhaps, CONTRACTUAL) model in which VET and researchers are recognised as being different parties to a common project of enhancing VET policy, planning and practice. The relationships would vary depending on the work done (e.g. from reflective practice in VET to independent research), but the conditions, resources and ethics of each party would be recognised and respected within the terms of the negotiated arrangement between the parties. This model offers scope for generating diverse research outcomes that can be used to inform debates about VET reform.

7. For the cooperative (contractual) model to work, requires VET policy makers and practitioners to have an understanding of the distinctive character of research as *work*; a sense of its difficulties and limits, and of the way research questions generate many answers and many more questions. Education of the receiver (and commissioner) of the research is as important as education of the researcher.

8. This cooperative model also requires special attention to the development of organised translation mechanisms between the different discursive communities centred on VET. This is partly a matter of dissemination (as noted at the symposium), but it is also a more generalised process that puts a priority on the productive use of discursive dissonance and developing the skills and capacities for hearing and speaking across cultures.

Session 4 Research and Researchers' Perspectives: From the Viewpoint of Other Sources of Research.

Fran Thorn[1] **Spoken Comments**

Consultants and researchers are now less distinct than they used to be. The big six accounting firms are relatively recent players in the policy making process. However, they are a growing force (KPMG has 1,200 staff in its Melbourne office alone), in policy making, in research, in the provision of advice to governments in general (and on VET in particular). One reason is the downsizing of the public sector: what was public is now private. Governments appear to be increasingly looking for alternative sources of advice, perhaps because of distrust of the traditional sources. They do tend to want the advice urgently.

There are a range of categories of research. KPMG does not tend to be called on for traditional research. They tend, rather, to be called on to solve problems, to do so quickly and not to be smarter than the client. Governments tend to overspecify the methodology, but do underspecify the questions to be investigated. Clients tend to be looking for speed rather than reflection; to help the policy happen. There appears to be scope for consultants to expand their role in relation to evaluation studies in VET. They help decision makers modify and redirect both policy and practice. The work of consultants tends to be more breadth than depth; they often synthesis research rather than undertake original studies; it is highly focussed on providing relevant results to the client promptly and in a useable form; and it can be tricky to put forward views that the evidence suggests, but that the client may not really want to hear.

With particular regard to VET, there is a small group of policy makers, who tend to think training is the centre of the universe. They are often a bit anti-intellectual; a bit insecure about the sector's valuable role for many Australians; often not interested in hearing bad news; and tend to believe their own rhetoric. Overall, they inhabit a contested domain; they tend to be looking for solutions, not policy or research; and they often want answers, not more research questions.

---

[1] KPMG Consultants, Melbourne.

Session 4 Research and Researchers' Perspectives: From the Viewpoint of Other Sources of Research.

Other Matters Raised in the Discussion Period

Among the additional matters raised in the discussion period, which was relatively short at the end of the day, three are set out below. First, it was noted that the distinctions between the sectors of education were tending to become more blurred. In NSW Perce Butterworth noted that there were some 35,000 school students studying VET subjects; collaboration between VET providers and higher education institutions was also increasing. Some scepticism was expressed about the growing interest in VET by university researchers, but others noted that this was in line with national policies and responding often to explicit incentives.

Secondly, it was stressed that information was only one factor influencing decisions (and that research was only one source of information for decision makers). For example, one speaker argued that the Howard Government abolished the Job Compact arrangements "because they were ideologically against this approach: research had nothing to do with it. If the Keating Government had been re-elected, the arrangements would still be in existence".

Thirdly, the importance of individual champions or patrons was noted, both in the research system and in the decision making system. Don Anderson argued that the change in Minister significantly downgraded the chance of the inquiry's findings in relation to post-secondary education in Victoria being implemented, whether based on research or not. Continuity at the political level would probably have increased the chance of research impact in this case; on the other hand changes in governments, Ministers and their senior bureaucrats could open the doors to some research, while closing it on others.

Session 5 Community Relations: Researchers' Contribution to Facilitating Interactions Between Wider Economic, Political and Societal Systems and VET.

David Corbett[1] **Speaking Notes**

The impact of research on policy may be indirect. Research may produce or reinvent an idea, the idea may spread into the community and become popular, and then the policy elites may take it up and produce policies and programs based on it.

The media play a role in spreading an idea and making it popular. Media reports of research findings are rare, however. It is more likely that a research idea will have been promoted by a keen research publicist - a "product champion". Such a person may find patrons in a specialised interest group or promotional organisation. He or she may find a patron in the policy elite, but that may only happen after the idea has gained currency in the community.

What is under examination in this symposium are questions such as "Where do policies come from?"; and "What part does research play?" There is a political science literature on this topic. Within this literature several themes are developed, a certain amount of agreement exists, but also differences of emphasis and some outright disagreements. The topic of agenda-setting is also dealt with in sociology, with which political science often overlaps.[2]

---

[1] Visiting Fellow, Centre for Public Policy, The University of Melbourne.

[2] For example, see the 1996 book, *Agenda for Excellence 2*, a collection of studies in honour of Professor Charles Levine, edited by B. Guy Peters and Bert A. Rockman, two well-known American writers on public policy and public administration. The chapter by H. Brinton Milward and Wendy Laird contains a review of the agenda-setting literature; also included in the notes are references to many of the outstanding contributions.

Session 5 **Community Relations: Researchers' Contribution to Facilitating Interactions Between Wider Economic, Political and Societal Systems and VET.**

Steve Balzary[1] **Speaking Notes**

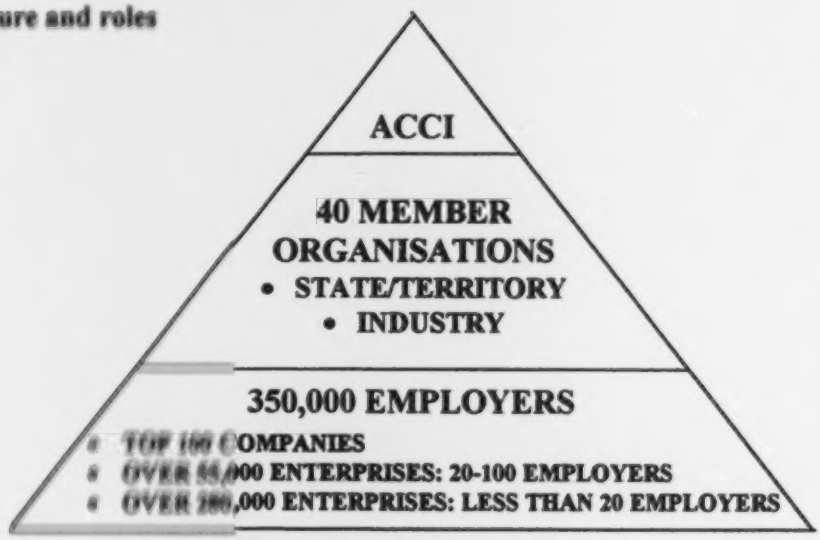
1. Australian Chamber of Commerce and Industry's Mission Statement:

'To further the interests of its members and the Australian community by formulating and effectively promoting policies which create a growing and responsible private sector'.

Note: (i) ACCI works through its structures, sees its prime role as to represent employers and engages in extensive consultation.

(ii) ACCI is not just an industrial relations body. It undertakes a range of work of interest to its members, including about eighty people who are involved in education and training matters. This is seen as part of the organisation's mainstream activities.

2. ACCI - structure and roles



3. Research's contribution to facilitating interaction between wider systems and VET

- 'Employer led' approach to 'consultation with industry':
  - ACCI wants a major, even leading, role for employers as the key stakeholder in relation to VET.

[1] Office of the Australian Chamber of Commerce and Industry, Canberra.

- The 'employer led' approach to VET is being whittled away; to ACCI 'employer led' applies to everything relating to VET; particularly focusing on the needs of small and medium sized enterprises.
- Employers are interested in what benefits they can derive from VET and in the bottom line.

- Employer organisations as initiators of research:
  - There is a lot of research going which is of no interest at all to employers.
  - There is a mass of paper, but to be read by employers it needs to be short and concise.
  - Member employer organisations rely on ACCI and government agency staff to distil the relevant points from research for them.
  - ACCI obtained $30,000 from ANTA to conduct consultations (in relation to VET in schools). This is a value added product, which is helping to bring employers along with the process. We will own the outcomes.

- Consultant led recoveries:
  - Very heavy demands on ACCI staff and members. Currently some 25 research projects directly affecting employers in the VET sector.
  - Employers are increasingly unwilling to participate; and not turning up or participating. This is a problem for employer organisations as well as for researchers.
  - ACCI is trying to focus on issues of particular importance to employers; but other issues can be important and the issues are often inter-related.

- Relevance / distribution of findings to all stakeholders:
  - In writing reports it is important to target particular audiences. This is a major challenge and it is often not well done.
  - Yet training and related matters are critical for productivity performance.

4. In conclusion

- Employers see VET as important, including traineeships and apprenticeships.
- Inter-action between firms and VET is difficult; it is a particular problem for many small and medium sized firms.

Session 5 Community Relations: Researchers' Contribution to Facilitating Interactions Between Wider Economic, Political and Societal Systems and VET.

Rex Hewett[1] **Prepared Paper**[2]

Introduction

In approaching this topic I reviewed some recent experiences of the AEU as the union representing nearly 200,000 workers exclusively organised in the education industry throughout Australia. I considered the place of research within the AEU and the way our research effort influences politicians and other decision makers to advance the interests of our members, the education industry and the wider community.

This paper deals briefly with the role of union research, an assessment of the directions of VET research and finally the use of research in recent experiences of the AEU in attempting to influence the ultimate policy makers, politicians.

Union Research

Union research has many aspects, industrial, for salary and conditions issues such as for court cases or to assist in negotiations, research to support pedagogy as well as research on a broader ideological, political and social scale, which assists us to campaign in the wider community. The latter research plays an important role for a union in a industry largely (although less than in the past) dependant on government funds. And of course this research is agenda setting. Some 80% of the union's research effort is located in the industrial relations area.

Results are the best measure of the success or otherwise of research. It goes without saying that all research takes place in a particular political and social context.

VET Research

With the move towards much more commissioned research there could be a tendency for those who can afford it to have a research base for policy development at the expense of less resource rich communities unable to afford to fund alternative research.

It is important for the integrity of research in VET that more reflective and critical research is commissioned. There has been a tendency over recent years to reflect policy makers' views rather than influence their decision making.

This is not to deny that much valuable research has underpinned the implementation of more effective training reforms.

---

[1] Federal TAFE Secretary, Australian Education Union (AEU).

[2] Personal views, not necessarily those of the AEU.

However, research undertaken to aid the implementation of policy initiatives without sufficient critical research can lose the support of the groups whom it is intended to influence.

For example, take the issue of user choice and the move to deregulate the training market. Despite declining public resources and research confirming employer and student satisfaction with the relevance and appropriateness of current training, user choice will be introduced from the beginning of next year, potentially creating a situation where valuable public resources may be unnecessarily duplicated.

However a larger question to be resolved is whether user choice in which buyer and seller agree to training arrangements allows for individual student choice. Without well monitored quality assurance measures, simply allowing the buyer and seller to negotiate training arrangements could result in unsuccessful outcomes for the learner.

As I understand it no research money has been available to examine this area of policy. Nor has there been sufficient investigation of the effects of such deregulation on access to training, particularly in a high unemployment regime. The social consequences of unemployment, regional disadvantage and difference, and the lack of access for disadvantaged Australians are not decisions that should be left to individual employers.

The training needs of individuals through a working life where at least four career changes are likely to occur and the need for ensuring balance between private specialised training needs and the needs of a highly mobile workforce such as exists in Australia are other areas where more work needs to be done.

Research has not addressed the issue of the consequences of failure on individuals for such failure is too disguised and delayed to be effective in the instant 'user choice' approach.

Current research centres on the competitive model for establishing the demand for and supply of training. However, insufficient research has been commissioned to examine partnership models that have successfully operated for years between TAFE, private providers, individuals and employers.

For example, the latest discussion paper from ANTA on developing the training market of the future is underpinned by an approach to the training market which is based on a competitive labour market model. It talks about competition being the way to 'empower demand and improve supply in the training market'. **This paper assumes that the choice of the buyer is made in a free market and that employers and employees exercise choice in the same way. Anyone who has undertaken an apprenticeship as I did knows that the apprentice has no choice of where they undertake training.**

Equating the training market with the labour market is as grave a mistake as assuming that choice is exercised without consideration of individual interest. Furthermore the

needs of an industry or industry sector will not always be reflected by the short term decisions of individual firms.

The ANTA paper also says that employers want more relevant, flexible and cost effective training. The latest national AGE McNair survey of employers scores extremely highly the relevancy and flexibility of the current training system. The training environment is a cooperative one and will remain so, even under a so-called competitive model.

The ANTA paper puts forward a pile of assertions, many of which have no research data to support these assertions.

The community could be forgiven for being cynical about the motives of those who promote a single model at the expense of other well tested models.

Another important issue warranting study is the extent to which equity objectives are achieved in relation to expenditure of public training funds under a user choice approach. For example, the current sex segmentation of the labour market could result in a distortion in allocation of funds to training for certain occupations where women are under represented.

Where governments make decisions about the allocation of training funds it is critical that they are aware of whose interests they see themselves as serving.

In defence of the researcher, I also believe that much policy making is governed by selective use of research material, sometimes completely distorting the original research.

AEU Federal Election Research

Aware that key policy issues such as the funding and organisation of education were critical for public education prior to the federal election of March 1996, the AEU commissioned the Saulwick company to obtain membership attitudes to key federal funding issues. We wanted to find out in the context of the election campaign what level of priority education issues played in membership voting patterns and how our members could use their vote to influence election outcomes in what looked like a close political contest.

As well as the Saulwick Poll two additional pieces of research assisted us in developing an electoral strategy: an ABS demographic survey identifying primary, secondary, TAFE and university staff by federal electorate, and in particular by marginal electorate; and some private longitudinal research acquired through one of the political parties about party loyalty and changes in federal election voting patterns over the last 15 years.

The Saulwick Poll found that members could not easily distinguish which level of government had the major responsibility for education, although it was clear that they were aware of the decline in education funding and felt both levels of government (federal or state) blamed one another for the decline.

They felt that the federal government had the major influence on vocational education and training, but were not decided as to whether this influence should be extended to a takeover of all of vocational education and training by that level of government.

Vocational education and training was not considered a significant priority for additional funding amongst union members, even for those who worked in TAFE. Funding for primary education was regarded by TAFE industry members as a top priority. This may have been because the TAFE members surveyed had children of primary school age or because they believed there were already sufficient funds for the TAFE sector. From recent TAFE membership salary campaign feedback I do not think it was the latter reason.

In general, however, the Saulwick research indicated low levels of interest in education or vocational education as a federal election issue, mainly because of confusion over funding and functional responsibilities.

The ABS demographic data and party loyalty data revealed that:

1. teachers were disproportionately concentrated in marginal city electorates, were in the middle to upper income brackets and likely to be at least two income working families.

2. in 1981 78% of the electorate voted for one of the two major political parties, with 22% swingers. However by 1995 52% of the electorate voted for one of the five major political parties with 48% being swingers. The unpredictability of voting patterns confirmed evidence from the Saulwick Poll.

3. teachers more than any other occupational group were more likely to vote for one party in the lower house and an alternative in the Senate.

4. education was not a major electoral issue; however it registered higher than normal as an election issue in federal marginal electorates.

These results to a large extent spearheaded the union 'Education is the Window of Opportunity' campaign. It provided the basis for the 'defensive' strategy to target individual federal election candidates and political parties around the theme of education as an opportunity which should be available to all and on which the window should not be closed. Commitments were sought from the political parties before the election result was finalised. The Democrats were the most responsive of the major political parties to this approach.

Since education was not to be important in electoral terms generally, but was important in marginal electorates, the research enabled us to develop a marginal electorate preferred 'education' candidates list. This list was enhanced by a Senate preferred political party list and forwarded as a guide to members. Included in the list were the Democrats, Labor and the Greens.

While the election was an overwhelming win for the Coalition parties in the House of Representatives, the Senate result provided an element of political balance, which may be of some influence on decision makers in the future development of the training market.

The impact of research as it applies to the broader electoral process may be of indirect benefit in influencing training reform outcomes in the future, though not in the traditional vocational education and training research sense.

Session 5 Community Relations: Researchers' Contribution to Facilitating Interactions Between Wider Economic, Political and Societal Systems and VET.

Jane Carnegie[1] **Spoken Comments**

My comments are personal and derived from my own experience. ANTA conducts its own research, has a range of uses for and involvement with research: it is primarily interested in research to improve policy and practice in VET. At the ACTU my role was similar to that outlined by Steve Balzary earlier for ACCI. The pressure of time was crucial in both roles and, while research was important to me, limited time was a constant constraint on how much involvement with research or research findings was possible. Generally, there was enormous pressure to deliver and to deliver quickly.

In relation to the boundaries of research the definitions advanced in the background paper are supported, but research should be conceived in a broad sense. A further dimension relates to "who" is doing the research. Some people both use and undertake research. The precise boundaries can be difficult to draw, eg. if research is done but not written up it can still influence policy or practice. Also, is research necessarily dependent on whether it achieves an outcome? It may not give the outcome, insight or data which is required at that stage, for the particular problem being faced; but it could have other outcomes or outcomes at a later stage or in another context. This links with the distinction between direct and indirect impacts of research. In fact, commissioned research is often pre-determined, which can limit its use or impact, perhaps in unintended or even unappreciated ways. Unfocussed research is significant in the overall picture.

In relation to the impact of research there is likely to be a difference between impact in relation to policy purposes compared to practice or performance. Purposes can vary, there are a wide variety of skills involved to meet these purposes effectively and different research will tend to have impact at different levels of VET. Research should take issues forward, building on or modifying what was already known or believed. Often, especially with commissioned research, the underlying assumptions are given and little scope may be available for the researchers to test them. In the longer term this can be a concern: those who received the report or findings may not be being properly informed, but going round in circles, perhaps a circle which was not soundly based in the first place. Critical research or basic research in some cases might not be making a direct contribution to the particular decision, but it might raise more basic issues, increase knowledge and understanding and have wider, broader results. There needs to be space in the overall research effort for a variety of types of research.

We are witnessing an increase in the debate in the community about the VET sector, but perhaps there is still less than in a number of other areas, and further development may be warranted. ANTA, as a significant policy organisation, needs to understand the issues, but too few people in the organisations which make the policy decisions really

[1] Her comments represent her own personal views and are not necessarily those of her current (ANTA) or previous employer (the ACTU).

understand them. Policy is too often made on the run and in such circumstances it may not always be soundly based.

Finally, the importance of the audiences for research, which of course can differ between different levels of VET and types of research, is noted. Broad circulation of research reports and research findings is important; there is frequently a need for targeted dissemination; and circulation and dissemination may require to continue for some time rather than just occur at the immediate end of the research project.

Session 5 Community Relations: Researchers' Contribution to Facilitating Interactions Between Wider Economic, Political and Societal Systems and VET.

Shirley Randell [1] **Speaking Notes**

Two areas of activity in which I have been involved that would be ripe for researchers to link their work with the community and improve community relations between educators and researchers have been in adult education and local government. I have been involved in both and would like to draw on that experience for this symposium.

1. ADULT EDUCATION [2]

Introduction

The Council of Adult Education (CAE) in Melbourne is an unusual institution, being by far the largest single provider of adult education programs in Australia. It is an organisation sourced in the rich tradition of late 19th century voluntarism and philanthropy, but blended into that historical wellspring are modern streams of equity and social justice and, much more recently, a strong market driven approach brought about by the need of the organisation to generate more and more of its own income. The CAE began after World War Two. The closest parallels to it within Europe would be the large 'volkshochschulen' within Germany, the City Literary Institute in London, and the larger folk universities in the Netherlands. There may be others but those are the ones with which I am familiar. All of these are substantial providers of adult education that derived their educational inspiration from liberal philosophies of emancipation and social progress. The CAE enrols over 60,000 students a year in over 4,500 short courses and other programs of a principally one-off nature, which are generally non-accredited. It has an income of some DM18 million, of which about 40 per cent is from the state government of Victoria.

Like adult education institutions the world over the CAE lives in a rapidly changing environment. The state of Victoria is not at all hostile to general liberal adult education and the work of the CAE, but it has now developed many other priorities for adult education and the tax dollars that go to support it. The CAE has found that the state contribution to its budget has been reduced considerably as a result. Meanwhile there is increasing competition for student numbers from within the government, voluntary and private education sectors. Money that is available to adult education is targeted towards programs of high social priority, such as literacy, employment and training, and the competition for those funds is vigorous. The CAE has moved from the relatively sheltered world of providing short course adult education to those prepared to pay for them to an organisation that has to be extremely mindful of the market and its

---

[1] Former Chief Executive Officer for the City of Whitehorse; and previously Director of the Council of Adult Education, Melbourne.

[2] Based on the paper given at the European Society for Research on the Education of Adults Seminar, Lahti, Finland, August 1994.

relationship to government. The organisation has to find a new role for itself in somewhat unpredictable circumstances.

One answer to this predicament has been to reorient the approach and the resources of the CAE towards becoming an institute of adult learning, an organisation that can direct its adult education knowledge and skills towards the service of governments and the market. Research in adult education was an area identified as one with potential for development. Today I propose to make some observations upon the difficulties of establishing a research orientation within an organisation that has not seen that task as pre-eminent, give a brief background to research in the adult and community education (ACE) sector in Australia and outline the research strategy of the CAE.

Research in the ACE sector

The need for research in the ACE sector in Australia has received particular attention over the last three years. The National Board of Employment, Education and Training (NBEET) report, *Educational Research in Australia* (1992), was prepared by the Australian Research Council in December 1990. Initial priority areas for research outlined in this report include:

1. Fundamental research on areas of continuing importance to education and the improvement of professional practice, in particular:
   - the teaching of thinking skills;
   - learning in the preschool and adult years; and
   - assessment of student learning.

2. Research on the organisation and management of educational structures, programs and personnel, and the interrelationship between education and the wider society, in particular:
   - leadership and management in devolved education systems;
   - education, training and work; and
   - teachers' work.

3. Research directed towards the revision and improvement of specific areas of the curriculum, in particular:
   - mathematics education;
   - science education; and
   - language and literacy education. (*Educational Research in Australia*, 1992:81)

A 1991 Senate Committee on Employment, Education and Training's report, *Come In Cinderella*, concluded that 'overall research in Australia in adult and community education has been ad hoc, often undertaken in isolation from and ignorance of other studies...There is no on-going collection of even the most basic data concerning patterns

of participation and who is providing what and at what cost.' (Come In Cinderella, 1991:157). The report recommended that scholarly study of adult education is critical to:

- policy development;
- curriculum development;
- understanding of the way adults learn;
- encouragement of good practice in the field; and,
- the training of adult educators (*Come In Cinderella*, 1991:154).

These and other external influences and the recognised need from within the CAE have led to a greater emphasis being placed on research within the organisation.

Research at the CAE

Establishing a research ethos at the CAE has not been easy, although, like the proverbial rolling snowball, if allowed to gather momentum of its own, it appears capable of developing a unique impetus and identity. The fundamental resistance to the research ethos within the CAE is sourced in four major areas which are all interwoven and interdependent:

- the organisation is founded in praxis;
- theory is seen as a luxury and non-contributory;
- research experience has been inconsistent and mainly market driven; and
- there is a weak research ethos and research skills are lacking.

Adult Education as Praxis

Adult education in Australia did not begin as a discipline, it began as a field of practice. Even at this time there is not a department of adult education or anything like it at any of the seven or eight universities within Victoria. Across Australia more broadly there are such departments, although there are not many and their contribution to research is relatively insignificant at this time. Within Australia in general the total funding that goes towards research in the technical and further education (TAFE) sector, which for the point of this discussion includes adult education, is less than 0.2 of one percent of all the funds allocated to research in the post-secondary education sector overall. The bulk of this work you can assume is done in the universities. There has been little research work in TAFE or about technical and vocational education matters; there has been even less in adult education. The reasons for this failure are probably similar.

Adult education began as a very practical service. It was about providing learning opportunities to deal with the real and immediate needs of people. This emphasis was compounded by the tendency within Australia for adult education to grow as part of the voluntary or civil sector of society. It was not closely connected to academia (or government) and when it was, as in the case of the few university centres for continuing education that did exist, it was largely related to the very practical delivery of extramural

study programs. The CAE is a wonderfully pragmatic organisation. It has had to be. Not only does it come from a tradition of immediate and direct service to people, it is sourced in a tradition that says it is best to stay separate from government and a good way to do this is to generate your own funds. The production of income, the making of money, is not all there is to adult education, but in this day of budget cuts and financial survival you would be forgiven for thinking so. Anything that detracts from the immediate goal of program delivery and income generation is secondary. And that is why theory is largely treated as a luxury.

Theory is a Luxury

If research does not generate student enrolments, does not contribute to putting people into classrooms, then why do it? This has been a prevalent attitude within ACE and the CAE until quite recently. It is anchored in the historical antecedents of adult education in Australia and in our prevalent philosophical attitudes. Adult education is largely wedded to a very utilitarian philosophy. Such pragmatic philosophic positions are common within the English speaking countries. This will not be news to many people, but coming from that tradition I was never so strongly aware of its pervasiveness until I attended for the first time, in 1989, the Salzburg Discourses. The conference was attended principally by adult educators from Austria and Germany. There was a small cadre of English-speakers, and others, and at the end of the second day of what was a very learned conference the consensus among the people from the UK, Canada and Australia was that this was a very theoretical and wordy conference and would we ever discuss something relevant and practical. Our strong bias was towards the utility of what was being discussed, whereas the Discourses were an opportunity to spend a long time considering the question from as many intellectual referent points as possible. It was only later that I realised the strong bias there is in adult education in Australia towards the doing, towards action. The reverse side of that is the attitude that talking about adult education, theorising about it, researching it even, is somehow not considered right and proper. Research is considered to be a luxury and non-contributory to the core business of the CAE.

Research Experience is Inconsistent and Mainly Market Driven

In nearly 50 years of operation the CAE has undertaken a number of significant pieces of research. These have often been related to particular programs and have generally taken the form of summative evaluations. Adult education agencies such as my own frequently seek grants to undertake particular tasks and the funded programs have to be written up for accountability reasons. This is usually part of the grant requirement. As a consequence this form of summative research results in once-off pieces of work that are principally descriptive rather than analytical. I am unaware of any research conducted at my organisation that tested hypotheses about the research question under consideration.

The other main forms of research have involved understanding more about the student body with a view towards making better selection of programs so that more people can be attracted to classes or more about adult education providers who are competitors. This could be classified as market research, because its main theoretical outcome has been to increase student numbers or improve organisational efficiency although,

193

typically, those who do the research are not often those who organise classes and so the dissemination of such information and whether it is actually used or not, are largely problematic. Such studies have been demographic, finding out more about where students are drawn from, their age, education, income level and other key pointers to potential enrolment, and psychographic, about students' interests, values, needs and expectations. We have also tried to find out more about what other providers do, what programs they offer and at what price. Until 1992 there was no overall research plan at the CAE and most of the research effort had been piecemeal and incoherent, that is, unrelated. Activities in one part of the CAE were not connected to activities in another. Research had been once-off, piecemeal and lacking an overall direction.

Weak Research Ethos and Lack of Research Skills

As a result of this combination of circumstances the CAE has lacked a coherent research ethos and has not had the skills to mount significant pieces of social research. This is not to deny the importance of some research done in workplace basic education, for instance, but such scattered, though significant endeavours, only serve to highlight the general weakness of the area at the CAE. Many staff have just felt uncomfortable with the possibility that they might have to consider bringing research into their area of work and others have been unwilling to undertake it given the normal demands of their work life and the perceived irrelevance of such work to an increase in student numbers, the organisational bottom line. Until the appointment of a new Director in January 1991, research was not actively encouraged at the CAE.

Developing a research ethos at the CAE

Following the appointment of the current Director a concerted attempt was made to encourage the development of a research culture at the CAE. The development of such an ethos was not to be done in isolation from the direction of the organisation, it was not to be ad hoc, piecemeal. The vision of the new Director was that the CAE would become an adult education institution which emphasised excellence in teaching and that the training of adult educators and research would also be fundamental to the operation of the organisation as a whole. To encourage research activity and thinking and to actively combat the ingrained organisational attitudes described, five major activities were initiated:

- establishment of an in-house research fund;
- appointment of a CAE research officer;
- development of a research plan;
- encouragement of personal research within degree programs; and
- applications for external research grants.

Establishment of an In-House Research Fund

The first step was to make available an annual allocation of DM25 000 to encourage research projects by CAE staff. The Director's Research Grant, as it is known, was made

to stretch a long way by putting a maximum ceiling on each grant of about DM6 000. It was also believed that, by limiting the grants to a relatively small amount, staff would be encouraged to undertake such work without seeing it as an inordinate drain on their personal resources and energy. Moreover, it was believed that small projects would be achievable and thus provide the stimulus for staff to undertake other in-house grant projects and also act as a catalyst to encourage staff members to pursue larger grants outside the organisation.

The Director's Research Grant has proved critical to achieving the objectives of developing a research culture at the CAE. Specific research decisions are made by the Director acting with a research committee on the basis of the CAE's research plan. Six small grants were awarded in 1991 and five grants in 1992. In 1993 two new proposals were funded. The CAE's 1994 research plan includes the following priorities for research:

- policy development and planning;
- market research;
- client participation, motivation and satisfaction;
- pathways from CAE courses;
- adult learning; and
- teacher/tutor participation, motivation and satisfaction.

In 1994 ten projects were submitted for funding, seven of which were recommended by the research committee and approved for funding:

- market research;
- market research on business and management courses;
- new curriculum directions for older people;
- needs analysis for the Catering for the Elderly course at the CAE;
- long term effects of train the trainer programs on skill building in the work place;
- recognition of prior learning; and
- maps for program planners.

These projects were spread across departments to encourage widespread research and were selected to provide a range of relevant projects. Five other projects are currently planned for completion in 1994:

- outcomes from courses for unemployed persons;
- outcomes from the Fashion Industry Program;
- exit survey of students from the languages courses;
- VCE participation, motivation and intended pathways; and

- factors affecting job satisfaction and work effectiveness.

Completed projects have resulted in publications on teaching staff relationships with the CAE (Barber, 1992), student profiles and learning pathways in the CAE Fashion Program (Horley, 1993) and learning opportunities for older housebound people (Manning, 1993).

The CAE monitors and evaluates the results of these internal research activities to provide feedback to CAE decision makers about the effectiveness of the research venture and to guide future research activities. They are also used as evidence of the CAE's interest in and commitment to adult education research in the pursuit of other grants. While the research topics are still very much oriented towards internal and practical matters the general trend of the organisation has been towards seeking external grants to undertake research that would be more significant on a national and international level. The attempt to develop a research ethos appears to have been successful in that regard. The most significant impetus in the development of this new culture, however, has been the appointment of a research officer.

Appointment of a Research Officer

The appointment of a research officer at the CAE was not done without considerable angst and against considerable internal pressure. Why do we need a research officer?; why is this money being spent on an appointment such as this when it could be more useful generating further student numbers and increasing revenue? These and other questions, sourced in the circumstances discussed previously, were typical of the organisational dissent about the position and it was not without some disquiet that management continued with the appointment. The CAE was fortunate to find a research officer with significant background and knowledge in educational settings, who brought with him many practical and theoretical research skills and who was very willing to work with staff to hone their own research skills and to develop and implement internal and external research projects. The appointment has promoted the research culture in four main ways:

1. It is a symbolic appointment. It says that the CAE is really committed to research.
2. The current research being done within program departments has been improved through the tightening of goals and methodology. This has had a fortunate spin-off in heightening the organisation's overall focus on outcomes.
3. It has enhanced the skill level and research interest of staff who would otherwise have seen themselves as practitioners only. This has mainly been achieved through running internal seminars on research, using the expertise of the research officer and other people brought into the organisation from the outside to talk about projects.
4. It has permitted the application of research funds from external sources to investigate issues of concern to the CAE.

Development of a CAE Research Plan

It was necessary to develop a research plan if the progress of research at the CAE was to be both emphasised and prioritised. The contents of such a plan were developed giving due consideration to national documents and policies that identified directions in which research was needed at a national and state level. These findings were then considered in the context of the CAE, its vision and mission. The plan had to be broad enough in scope to enable state and national research to take place where possible and local enough to be acceptable internally. The research officer undertook the development of the research plan, which was ultimately circulated to all departments to comment upon and suggest modifications as appropriate.

Most of the research completed at this time and most of the research planned for 1994 is practical and has direct application to the departments in which the research is being undertaken. However, if the vision and the mission statements of the CAE are to be achieved, then the organisation must move forward in its research thinking and application. Through constant encouragement of research activity and the increasing requirement for rigorous research proposals for internal and external research projects, we are confident that the research expertise of staff will be raised to the highest levels. In turn this will encourage staff to be confident in asking questions not only of the programs they are preparing, designing and evaluating, but of other associated adult education issues. These two streams of activity will be reflected in future research conducted at the CAE.

Encouragement of Personal Research and Education

In the past few CAE staff have been recruited on the basis of their record of academic achievement-although many are qualified to tertiary level. Staff have been encouraged to undertake personal research through masters and doctoral degrees at local and interstate universities and leave is made available to people undertaking such studies. This has been a very personal project of the Director. The CAE has always encouraged people to continue their own learning in whatever way they saw fit; an adult education organisation can hardly do otherwise. Generally this has meant pursuing particularly idiosyncratic goals, often unrelated to adult education. Encouraging people to undertake further study with a view to doing research on adult education is but an extension of that approach-but an important one. Undertaking personal research has both individual benefits and organisational benefits and the capacity of such work to stimulate further interest in research at the workplace level cannot be underestimated.

Applications for External Research Grants

This emphasis on research is beginning to have positive repercussions for the CAE. Staff are more interested in research, albeit if their goals are still somewhat circumscribed by their immediate work tasks. While at an early stage, we have pursued more external and internal research work and have been successful at undertaking a number of significant external research projects, including a large project to assess the outcomes of adult education for the learner and a more limited but extremely interesting project on older

age Spanish speakers within the community. We have also sought to connect with other nationwide research agencies in order to work cooperatively with them on projects and are currently involved in some quite practical international work on adult education policy and legislation with UNESCO. A further development plan is to tap into business for research and development funds to resource initiatives.

Future priorities for research at the CAE

It is clear that the CAE must continue to engage in research and to find other sources of funding to expand the research endeavour. This impetus is strongly supported by the recommendations from the various reports and research studies listed earlier in the paper, the increasing influence of government for accountability and the requirement to maintain and improve quality from within the organisation itself. The following areas are listed in the research management plan as identified areas for future research work. The plan will be modified as new information is gathered about priorities of the CAE and other organisations involved in the adult and community education sector, and as staff reflect on their experience and identify issues which need to be addressed.

MAJOR AREA	DESCRIPTION OF RESEARCH ACTIVITY
Market Research	Reasons for non-participation in courses offered by the CAE. Identification of possible courses for CAE not currently offered; for personal enjoyment and growth, for employment, for further academic study (for non CAE clients) and probable client attendance. Other courses current clients believe could be offered at the CAE. Other courses current teachers/tutors believe could be offered at the CAE.
Client Participation, Motivation and Satisfaction	Identification and documentation of client profiles; who are attending courses, what courses clients are attending, number of courses attended, age groupings of clients, gender, home location (postcode), course location (postcode), non-English speaking background, disability, Koori. What courses are being offered and how course attendance has changed over time. Relationship between client profile and course profile. Reasons for attending the particular course. Reasons for attending the course at the CAE. Satisfaction of clients with course content, location of course, facilities, teaching/learning process, course outcomes.
Pathways from CAE Courses	Identification and documentation of client pathways from CAE courses eg. additional CAE courses, further study outside the CAE (University, TAFE, other), employment as a result of CAE course attendance, other pathways.
Adult Learning	Preferred learning style of adult learners; factors for investigation may include eg. age, gender, course attended, previous education; investigation of flexible modes of learning eg. on campus and off campus modes; appropriate learning methods for different adult learning styles or kinds of learning eg. concept development, skill development.

Teacher/Tutor Participation, Motivation and Satisfaction	Teacher/tutor profiles; who are offering courses, number of courses offered, age groupings, gender, home location (postcode), course location (postcode). Reasons for offering CAE courses. Satisfaction of teachers/tutors with courses being offered, facilities, equipment.
Policy Development and Planning	Research associated with the development of policy and planning for the CAE. This may include examination of overseas or interstate developments in ACE; demographic trend analysis; organisational issues; clients; or other issues.

Conclusion

In conclusion, I would like to explain how the various elements of research described in this paper interact with each other at the CAE. The CAE's vision statement and the mission statement outline where the organisation is going over a ten year time frame. A strategic plan is developed which enables us to identify what we are going to do over the next three years to achieve the aims outlined in these two statements. In turn, a business plan, marketing plan and research plan are developed, which detail what is to be achieved over the next year to achieve the objectives of the strategic plan. In co-operation with program departments, annual marketing and research strategies are developed and implemented.

The results of research are used to provide information to departments to improve the quality of education provision at the CAE. Outcomes, performance indicators and evaluation are a vital part of the quest for quality at the CAE and, indeed, are increasingly important for all ACE providers across Australia. All of these factors have an input into the raising of research skills and the promotion of a research ethos at the CAE.

The education of adults is becoming a national priority in Australia. Recently a national ACE policy was approved by education ministers from all states and territories of Australia and that now acts as some sort of guideline for future developments in the field, although the policy is not legislation and therefore not binding. It is also recognised that the amount of research that has taken place in both ACE and the technical-vocational area in Australia is just not adequate to sustain the growing interest in and importance of the field. Adult learning is now a priority for educational research dollars of the future and it is to be hoped that the continuing work at the CAE will enable us to undertake bigger and better projects in the future.

2. LOCAL GOVERNMENT

I could say much the same about my experience of research ethos when I moved from the CAE to local government early in 1995. However, it was even more difficult to establish a research milieu in local government, where the Victorian Government's targets for reform were so heavily based on the rapid reduction of staffing and funding. In addition to the strategies I had already proved effective at the CAE, at Whitehorse we

forged alliances with the Box Hill Institute of TAFE and neighbouring universities for research and training purposes. We were more successful with the latter: child care assistants and secretarial staff undertook accredited courses at Box Hill; and managerial staff studied at Deakin and Monash Universities. These accredited courses are recognised pathways to formal qualifications as well as ways of improving skills of workers which benefit the City. Some research is conducted at the different levels - universities, VET or private enterprise - depending on the focus for training - either senior management, technical or operational staff.

But to be competitive in the third millennium, local citizens - all people in the community - need to be multi-skilled. We still seem to be locked into the 1970s notion that it is a reasonable expectation that people can be educated through front-end schooling and trained for one job for life, rather than for the constant change we are experiencing in work opportunities in the late 1990s. We do not appear to be researching the needs of people in the community for life long learning and community participation, or engaging them often enough in research on these issues with us. These research agendas are relevant across the whole lifespan of Australian adults and are a fertile local environment for skilled field-based researchers. They need to be grounded in the political, economic and social issues confronting Australian society, and also connect with the international research community. So I want to conclude by making some remarks about the current political, economic and social climate, to which we referred only occasionally yesterday, given its contribution to the difficulties being experienced in establishing a proper research infrastructure that facilitates community relations.

3. POLITICAL, ECONOMIC AND SOCIAL CONTEXT

Let me paint a fairly simplistic picture, referring briefly to some of the wider political, economic and societal systems in Australia. I believe there are difficulties in establishing a proper infrastructure that facilitates community relations in the current economic, social and political climate.

For some years now, both internationally and within Australia, we have seen a growth in economic rationalist governments. The current Victorian Premier is the most fearless of economic rationalists. He can afford to be because he has a majority in both houses of parliament; other governments in Australia are not so secure politically. For instance, every state acknowledges there should be reform of local government and would like to follow the Victorian Premier's drastic action to achieve this, but to abolish democratically elected councils at the local level is extremely dangerous when there is a 'watchdog' upper house.

Based on political, economic and social philosophy the Victorian Premier is promoting the 'big':

- big Councils;
- big events: the Grand Prix, and other large sporting events;
- grand entertainment, like Sunset Boulevard and other big performances, like the three tenors;

- big gaming industries: the Casino; and
- big international interests buying up Victorian resources.

Are such economic rationalist governments interested in conventional employment? Take, for example, the current national government that was elected on a platform which, among other things, espoused belief in the contribution of small business to Australia, almost as an emotional issue; ie 'the prosperity of the country depends on the success of small business'. But small businesses are conventional employers; local government authorities are also conventional employers; and national and state governments at this time appear not to be so interested in conventional employers. If governments really paid attention to and acted on the needs of small business, would they get anywhere? Would people who finance governments perhaps intervene to stop them? Are the needs of big business really the only concerns in the economic rationalist framework?

Again, the current national and state competition policy that focuses on competitive tendering and cost effectiveness leads to the development of big providers. But is the amalgamation of TAFE colleges, at Wangaratta, Benalla and Shepparton for example, appropriate given that the conventional employment structures are different in each place and there are different needs in the local communities? And what of competitive tendering in local government? Whitehorse and the City of Melbourne may soon well be the only two horticultural centres in Victoria growing plants for all cities. Given the individuality of plant species to particular local areas across the state, and the importance of local community involvement to success in regeneration of vegetation and maintenance of parks and gardens, is this really appropriate?

Governments seem to have lost their capacity to be supportive of the community in terms of meeting the real needs of the community; to support small and caring employers within the community. And the community seems not to be pressing hard for an appropriate employment or training deal at the moment, perhaps because so many people in the late 1990s are simply surviving, many on part time work at MacDonalds or Coles Myer or Target, or gambling. And this is a disaster course for Australia.

Are big time musicals and other big events a fad? Is even the Grand Prix a fad that people will tire of and lose interest in after a few years? And what happens when these ideas lose their currency? What happens to a social system if people start to believe that the only way they can achieve their ambitions for their children is to go to the private sector for education, university, health, when the majority of Australians cannot afford private provision?

Now, the concepts that 'big' and 'private' are best, seem currently to be accepted principles of governments, and policy seems to be managed by a formula instead of research-generated information. In a way, every political, economic and social reality is pulling against opening up research that involves the community in identifying and analysing community needs. And, as we discussed yesterday, open research is quite slow, while governments are cost driven and want quick results Open research often brings

unexpected results; and most research is designed to justify a policy rather than to look at unmet needs.

Vocational education and training research must include support for small things in the community that are essential to the wellbeing of the community, essential to promoting equity and quality of life. Does the system exist for the providers or should it exist for the people going through the providers? There is a very wide diversity of people whose needs have to be taken into account.

VET research needs to be more open, more forward looking, more progressive, more ethical, more involving of the community, than perhaps we touched on in our discussions yesterday.

REFERENCES

Barber, Leonie. (1992). *The invisible army-a study of the relationship between teaching staff and the Council of Adult Education*. CAE, Melbourne.

Commonwealth of Australia. (1991). *Come in Cinderella: The Emergence of Adult and Community Education - A Report of the Senate Standing Committee on Employment, Education and Training*. Commonwealth Government Printer, Canberra.

Horley, M. (1993). *The CAE Fashion Program: Student Profiles and Learning Pathways*. Council of Adult Education, Melbourne.

Manning, Mary. (1993). *Education for the Fourth Age: Opportunities for Older People*. Council of Adult Education, 1993.

Peters, L. and S. Randell, (1994) *Outcomes, Performance Indicators and Evaluation in Adult and Community Education*, CAE, Melbourne.

Session 5 Community Relations: Researchers' Contribution to Facilitating Interactions Between Wider Economic, Political and Societal Systems and VET.

Other Matters Raised in the Discussion Period

Four matters raised in the discussion period which followed the prepared presentations are noted. First, a number of researchers argued that they had found that many firms, including small and medium sized firms, were "very happy to be involved with research". This was particularly the case when the research was seen as relevant to their needs or potentially of benefit to the wider VET system. It was noted that "burn-out" can be a problem for the committed few; and the issue was raised as to how to get the broader base of the community involved.

Secondly, a researcher commented that there was a balance to be struck between too much and too little consultation, noting a case where the body commissioning the research had specified very limited consultation and only reluctantly agreed to wider consultation with affected groups. People wish to be heard or at least not to be ignored on matters of significance to them. Wider consultations with politicians, constituents and the broader community were also raised.

Thirdly, it was agreed that the ethical content of research, policy and practice had to be considered in the overall picture. For example, the relative weight to be given by TAFE teachers in their practice to the different interests and expectations (where they *are* different) of students and enterprises, employees compared to employers. These ethical values are long term and can be difficult to address satisfactorily. Often there is a balance to be struck, rather than a single correct answer. Processes can be relevant as well as outcomes.

Finally, it was suggested that economic rationalism, the increasing use of tendering and outsourcing, need not automatically mean that research cannot be undertaken or may not be valuable. Indeed the converse could be the case, while there may be a basis for informed comparisons, relevant to future policy or practice. Some of these research projects could be relatively small in size, duration or complexity.

Session 6 Research, Decision Making and Action in Other Functional Areas of Government, and Internationally.

Rod McDonald[1] **Spoken Comments**

VET has historically been resistant to learning from the experience, whether in policy or practice, in other Australian States. It was not very many years ago, when invited to give a seminar in TAFE NSW, that I was told, under no circumstances, to illustrate my points with Victorian examples. Certainly, attitudes have been changing, but there is still a great deal of opportunity to increase the extent to which the States and Territories learn from each other: this can be mutually beneficial for different jurisdictions and for both research and action.

Secondly, there is the reference to the "rickety bridge" between research and decision making and the comment made at the symposium yesterday by a senior State decision maker in VET that when he or his staff, confronted with policy or decision making issues, wanted to consult relevant research which would help, they found all too often that "the cupboard was bare". However, has anyone actually looked? The problem may not lie wholly or even mainly in the research system. Certainly senior decision makers are very busy, but in the years that I have been at UTS and particularly in the last few years as Director of the VET Research Centre, which might be thought of as a natural conduit for inquiries, not once has anyone involved in operational matters or in forming VET policy ever contacted me to ask if there was research information on a particular issue which might assist them. There is something to be improved here.

[1] Director, Research Centre for Vocational Education and Training, University of Technology, Sydney.

Session 6 Research, Decision Making and Action in Other Functional Areas of Government , and Internationally.

Don Anderson[1] **Speaking Notes**

1. Education

Compared with other public institutions education:

- is massive in size
- is largely supported by public funds
- has a sizeable bureaucracy
- serves a vulnerable client population
- has teachers with low professional status
- has complex and not infrequently contradictory goals
- has diffuse effects which are hard to assess
- is frequently politicised
- is structured according to clients' age, social class and gender and according to region
- is characterised by repeated calls for Reform.

Most of the calls for reform are from interest groups or from influential ideologues in government or industry who make doctrinaire assertions regarding improvement without the benefit of evidence.

2. Research

Research also is a heterogeneous area of activity. Most education research is a subset of social research. It includes:

- experiments with human subjects
- social surveys
- longitudinal or panel studies
- observational and ethnographic studies
- analysis of census and other statistical collections
- philosophical studies
- public opinion polls.

A particular study may be initiated by a commissioning agent or by a researcher; it may be basic or applied. I find the latter is not a very useful distinction in social research;

---

[1] Centre for Continuing Education, The Australian National University, Canberra.

often working on someone's 'real' problem is as likely to yield insights into underlying processes as working on questions from theory. More helpful is the distinction of conclusion-oriented-research, where the research question comes from practice, from curiosity-oriented-research, where any immediate practical application is of secondary significance.

A good deal of education research is made from the perspective of a particular discipline - economics, psychology, sociology, history, demography etc. Cross disciplinary studies are not frequent, although given the complexity of the education area, almost every question transcends any one discipline. And education research tends to be confined to functional areas of practice - childhood, schools, higher education etc.

A good deal of the research referred to at this symposium by those from the policy side I would class as 'systems maintenance' inquiry. Systems maintenance studies are conservative exercises (the term is not used pejoratively) conducted with the intention of making an existing operation more effective or more efficient.

Although there is clearly a good deal of research activity in vocational education and training, not much is being reported in publications which submit contributions to peer review. For example *The Handbook of Research on Teaching* (1039 pp) contains sections on early childhood education, higher education, professional education and even education in the armed forces, but no entries on VET. When Aat Vervoorn and I wrote *Access to Privilege* in the 1980s on participation in post secondary education from an equity perspective we included a chapter on TAFE, but had to report that it was mainly *terra incognita*.

3. Impact

Given the complexity and political temperature of the field of education the connection between research findings and policy formulation is frequently controversial and almost always indirect. Action research, which usually involves close involvement of the client in the project, is a methodology where impact is likely to be more immediate. It brings the client and the researcher together in an intimate relationship. Action research topics are likely to concern some aspect of education practice rather than policy.

Longitudinal or panel studies are a powerful research method for analysing trends and the effect of prior characteristics and environmental changes on outcomes. For example, the ACER Youth in Transition project, which is following four successive national samples over a decade or more, can compare educational attainment for different types of school controlling for initial ability and social class. Data from this study have been used to evaluate the former government's policies for raising school retention and advancing participation of equity groups.

The competitive nature of much research funding and the publications race encourage the selection of research methodologies and questions which can be brought to closure within a year or so. There are disincentives for researchers to engage in long term studies, or in topics where the results may not be amenable to rapid publication.

Research which is lateral, which may not lead to any clear, crisp, positive findings or research which is outside the dominant paradigm runs the risk of being neglected. The use of research grants as performance indicators also tends to undervalue research that may require very little resourcing. There is a danger of the tail wagging the dog.

There has been some criticism at the symposium because of VET research being carried out in universities rather than in VET institutions. Anyone with the relevant skills can undertake research; anywhere. But for good reasons most research is undertaken in a specialised research institution - either a university or a centre. Such institutions offer appropriate infrastructure - computers, library, research assistance - but, more importantly, there is a collegial climate of critical support which is not usually accessible to the lone researcher. VET research would be advanced if more people with experience in the area obtained secondments or fellowships to work with teams in research institutions.

Some years ago, when *Youth Studies Bulletin* was published from the Australian National University, I surveyed those subscribers who were either policy advisers or researchers. The two different cultures inhabited by each was very evident in the responses. And each group was critical of the other. Researchers felt that their work was not appreciated by or used in the policy domain. They expected policy advisers to read journal articles containing research reports; but this was the last source that was consulted. In order of frequency of use the sources policy advisers claimed to use were: print media; networks; reports of enquiries; conferences; books; and journal articles. But use was not frequent. And, when asked, very few policy advisers were able to recall the name of any book that they had read reporting research.

We described the researchers and policy advisers as like ships passing in the night; each vaguely aware of the presence of the other - and to be treated with great caution. Indeed, I would be suspicious if there was a firm bridge, with ideas marching across.

Researchers are trained to be cautious, to make all necessary qualifications, to disprove rather than prove, to take all necessary time to bring an issue to closure. Policy advisers march to the beat of a different drum. They are not impressed by research which questions the basic assumptions of policy. And they want answers next week, if not sooner. They want clear, unambiguous, brief reports which address directly the issue of the moment. They may be wanting some fine tuning or legitimation of a position they already hold. The expectations of a British permanent secretary, quoted in *Knowledge for Policy*, are not untypical

> "... the great thing about research is that part of it is rubbish and another part ... leads nowhere and is really indifferent; it is, I am afraid, exceptional to find a piece of research that really hits the nail on the head and tells you pretty clearly what is wrong or what is happening or what should be done .... (Anderson and Biddle, p.5).

Research offices within education bureaucracies used to be a source for policy advisers for the assembly and interpretation of relevant research findings. Unfortunately, research

offices have largely been disbanded, largely I suspect, by those senior bureaucrats who complain that research is not relevant.

Political pressures not infrequently lead to the selective use of research in order to legitimise the positions of interest groups. The well intentioned but inept attempt by the Whitlam Government to get more children of poor families into university by abolishing tuition fees is an example. An evaluation using a before and after methodology found no difference in the social mix of undergraduates. The monograph reporting the study pointed out that this should not be taken as evidence that abolishing fees had no impact; and certainly not that appropriate interventions could not make the undergraduate body more representative of society generally. It was noted that, at precisely the same time as fees were abolished, studentship schemes were being phased out that had brought many thousands of able children into university from non professional and non wealthy families. Abolition of fees had probably helped to prevent a social regression which would have otherwise occurred.

Furthermore these schemes paid a living allowance as well as fees, the cost of living being more of a deterrent to enrolment than fees; and, because most social attrition occurs before the point of transition to university, they included incentives to encourage potential university students to complete secondary school. These conclusions were ignored by the then Minister for Finance who, determined to reintroduce 'user pays', announced that research had shown that fees made no difference.

While action research is a method for close collaboration between practitioners and researchers, the expert inquiry is probably the most effective means of bringing research to bear on policy issues. The inquiry may commission research studies that it believes inform policy questions or it may review existing research. When the inquiry chair or members themselves have been academics, as happens not infrequently, the use of research knowledge is facilitated. Some examples of the use of research by expert inquiries are:

> The Murray Report, which used studies of university student progress by psychologists and educators to conclude that the levels of failure and wastage were a national disaster.
>
> The Martin Report, which commissioned the distinguished demographer (Professor Mick Borrie) who predicted with some accuracy the (then) startling overall levels of participation that could be expected in higher education. (He failed, however, to anticipate the social changes which would lead to parity between the sexes). Martin also commissioned W.C. Radford, director of ACER, who reported on the gross under-participation in upper secondary school and higher education of working class children.
>
> The Williams Report on Education, Training and Employment, which appointed an academic (Dr Chris Selby Smith) as its secretary and commissioned ten major research studies by economists, sociologists and education researchers.

Regional Colleges, undertaken by a multidisciplinary team at the Education Research Unit in the Australian National University for the Commission on Advanced Education. It contained surveys, analytical studies and case studies of particular colleges.

Despite the wishes of policy advisers the impact of research is rarely linear, that is from problem (in theory or practice) to inquiry to findings to development to application. For one thing one study is rarely enough for there to be confident findings; more importantly the transmission of ideas between the research and policy domains is more a process of diffusion or, as Carol Weiss puts it in the title of a chapter, the process is one of "knowledge creep and decision accretion". She observes that, for people in high organisational positions, the conscious use of research to guide specific decisions is a relatively uncommon event. But "drawing on the stock of knowledge that they have absorbed from social science research is highly compatible with the manner in which they conceptualise (and perform) their jobs. What they do is conditioned by what they know" (Weiss, p.191).

The same may be said more generally of the vocabulary of ideas and concepts which influence our language, thinking and actions. Dewey has influenced how we think about students as active learners, Binet about the malleability of intelligence, Lewin about the effect of climates in organisations, Rosenthal on how teachers unconsciously influence children's self concepts, and Mayo, with the Hawthorne experiments, on the unintended consequences of intervention.

References

Anderson, D.S. (1984). "The use of social science knowledge in the formulation of policy advice", *Youth Studies Bulletin*, 3 (3), 110-132.

Anderson, D.S. (1987). "Where do the questions come from, for whom are the answers intended?", *Australian Education Researcher*, 13 (1), 1-25.

Anderson, D.S and Bruce J. Biddle (1991). *Knowledge for Policy; improving education through research* (eds). London: The Falmer Press.

Anderson, D.S. and Vervoon, A E. (1983). *Access to Privilege*. Canberra; The ANU Press.

Weiss, Carol (1991). "Knowledge Creep and Decision Accretion", in Anderson, D.S and Bruce J. Biddle (1991). *Knowledge for Policy; improving education through research* (eds). London: The Falmer Press. 183-192.

Session 6 Research, Decision Making and Action in Other Functional Areas of Government, and Internationally.

Chris Selby Smith **Prepared Paper**

Health expenditure in Australia was 8.4% of Gross Domestic Product in 1994-95 (the latest year for which ABS statistics have been produced) and the health industry represents about 7.1% of paid employment. Traditionally, it is an industry with close links between service, teaching and research, particularly at the clinical level. It has a strong ethos concentrating on the welfare of individual patients. The links between research, evaluation and decision making tend to be less obvious in relation to policy and planning, whether at the State or national levels.

The present comments are based on three earlier studies. The first study explored some of the factors influencing the effectiveness of the links between economic evaluation studies on the one hand and changes in (Australian) health policy and practice on the other.[1] The second study was undertaken for the Australian Health Ministers' Advisory Council in 1991-92: it involved the development of an inventory of health labour force research undertaken in Australia over the period from 1980 to 1991 (volume 1) and consideration of the reasons for, and the barriers against, research findings on health labour force matters being used in the public sector decision making process (volume 2).[2] We noted, *inter alia*, that the relationship between research and public sector decision making is rarely direct and immediate (rather, the relationship tends to be interactive, cumulative and related to a range of other variables); that outputs from research can enter into the public sector decision making process either as information or embodied in skills and attitudes (the latter appeared to be particularly important, but to be less recognised); and that research serves a number of purposes, of which input into the public sector decision making process is only one. The third study was written for the OECD. It noted the claims that, within the health sector, the 1990's would be characterised as a period in which research - especially evaluative research - would be of increasing importance, but also the growing recognition that additional research will not necessarily result in improved policies, better practice or enhanced health status.[3] The

---

[1] See M. Drummond, D. Hailey and C. Selby Smith, "Maximising the Impact of Health Technology Assessment: The Australian Case", pp. 234-271 in C. Selby Smith (ed.), *Economics and Health: 1991*, Faculty of Economics, Commerce and Management and National Centre for Health Program Evaluation, Monash University, Melbourne, 1992; M. Drummond, D. Hailey and C. Selby Smith, *Maximising the Impact of Health Technology Assessment: The Australian Case*, Working Paper No. 12, National Centre for Health Program Evaluation, Fairfield Hospital, Melbourne 1992; and C. Selby Smith, M.H. Drummond and D.M. Hailey, "The Role of Economic Appraisal in Health Technology Assessment: The Australian Case", *Social Science and Medicine*, Vol. 38, No. 12, pp. 1653-1662, 1994.

[2] C. Selby Smith, D. Davis, A. Fletcher, C. Fox, L. Ridoutt, and J. Selby Smith, (1992), *National Health Labour Force Research Program*, Report to the Australian Health Ministers' Advisory Council (2 vols.), February.

[3] C. Selby Smith, "Linking Health Research to Improved Policies and Practice: Some Australian Evidence", paper prepared for Organisation for Economic Cooperation and Development, Paris, 1993.

paper sought to identify and discuss those factors which can act as barriers to, or promote, the use of research in the health sector in governmental decision making processes.

It is also apparent from these studies, conducted by economists, that the particular academic discipline of the researchers can be important in affecting many relevant aspects of the relationship between research and decision making, such as the problems they choose to investigate; the detailed research questions they formulate; the evidence they collect; the analyses they conduct; the implications they derive; and the forums in which the findings are disseminated.

Inventory: Analysis of the inventory of (321) health labour force studies revealed a number of aspects relevant to the use of studies. First, it is obvious that only those studies which have been undertaken could have been used for public sector decision making. The analysis clearly indicates the concentration of studies in certain sub-sectors of the health industry, for certain occupational groups and on certain aspects (although this information is subject to significantly greater qualifications). Secondly, a little over one quarter of the research studies were restricted in availability, with slightly less than three-quarters available. Restrictions were of varying types and it may be that some studies to which restrictions apply are nevertheless, available to relevant public sector decision makers. Not surprisingly the proportion of studies to which access was restricted varied significantly between the settings in which the research was undertaken. For example, limited access is substantially more likely for studies undertaken in government than in tertiary education institutions.

The analysis also revealed that nearly two-thirds of the studies listed in the inventory had received no external funding; and thus had to be subsidised by the researcher's organisation if it was to be undertaken. In a number of cases, one presumes, organisations decided against subsidising possible studies. In addition, 52% of the research studies which did receive external funding received $10,000 or less in total (compared to about 21% which received more than $50,000). What external funding was received by researchers came disproportionately from governments and especially from the Commonwealth. If the view advanced by a number of those consulted during the project is true - that external funding encourages use of research findings - then the level of funding will be an important determinant of the number of "useful" research studies undertaken.

For about half of the research studies the respondents believed that they had been used in some way for policy, program or administrative action. Of the other half, a majority did not know whether the study results had been used or not. There also appear to be substantial differences in use between the settings in which health labour force research studies are undertaken. For example, for studies undertaken within government, respondents overwhelmingly believed that studies were used for policy, program or administrative action, whereas among tertiary education institutions and professional or industrial bodies the response was much more ambivalent (and there was a substantial "Don't Know" response). Research studies undertaken by private consultancy firms appeared to have a higher incidence of use than for those undertaken in tertiary

educational institutions or by professional and industrial bodies, but a lower incidence of use than for studies undertaken by researchers in government agencies. These figures may reflect the degree of closeness or distance of the relationship between researchers and the decision makers in terms of policy, program or administrative action (in some cases within government the researcher could be the decision maker). They will also reflect the different purposes for which research is undertaken in tertiary education institutions, in government or private consultancy firms.

Another interesting fact to emerge from the analysis is the very limited number of principal researchers who had done more than one study in this area. Very few had done multiple studies. The short duration of most research studies was another indication of this *ad hoc*, reactive focus: nearly a third of studies had a duration of less than six months and a similar proportion had a duration between six and twelve months.

Relevant Literatures: The review of relevant literatures suggested some possible relationships between health labour force research and use in the public policy process. Note that they are not hypotheses in the scientific sense; considerably more specificity would be required if they were to be phrased in a form suitable for testing. Four suggested areas of explanation were that:

(i) the purpose for which research is intended affects the relationship between research and use in decision making;

(ii) the form, extent and strength of the linkages between political, bureaucratic and research settings affect the relationship between research and use in decision making;

(iii) different organisational behaviours, including the psychology of organisations and their political behaviour, favour different types of information (and the weight placed on information at all in reaching decisions) and influence the relationships between research and use in decision making; and

(iv) that use in decision making is not necessarily dependent on the technical quality of the research study.

These explanations accord with our view that the reasons for and the barriers against research findings being used in decision making have their loci in each of three broad areas: within research settings; within the decision making process itself; and within the web of linkages which bring research and decision making together.

The review of relevant literature, while broadly confirming the relevance of these areas of explanation in certain cases, also raised a wide range of other factors which can act as barriers to or promote the use of health labour force research studies in the public policy process. These include:

- within the research setting: the different cultures in which researchers work; the perceived authority or credibility of researchers; and the timeliness of findings;
- within the decision making process itself: the nature of the public policy process; the values of key individuals and organisations; defensive mechanisms which can emerge

in bureaucratic and political settings; and suspicions - perhaps well founded - of hidden agendas; and

- within the web of linkages: the networks which promote effective and continuing interaction between decision makers and researchers; the interactive relationships - and discontinuities - which can develop between political decision makers, bureaucrats and researchers; and the degree to which the conceptually separate elements prove not to be entirely distinct in practice.

It was clear that there were many obstacles, both practical and more fundamental, which can act to prevent the optimum use of health labour force research studies (whether information or research skills and attitudes) in the public policy process. Information from research is only one source of information and information is only one input into the public policy process. Research skills and attitudes can also be important. However, any simple view that a particular research study results (or does not result) in a particular decision, action or use is manifestly inadequate. Furthermore, research is not solely for the purpose of immediate public policy. Finally, it was emphasised that knowledge embodied in people can be a particularly effective form of linkage, particularly as the public policy process is a continuing one with many participants. However, such linkages require continuing nurture.

Case Studies and Discussions: Six specific case studies were undertaken, four on nurses, two on doctors. Two related to Victoria, two to New South Wales and two were at the national level.[4] The project team also drew on discussions with a wide range of significant participants in health labour force research and in relevant areas of public policy, including industrial relations, education and training, as well as health, welfare and community services. In terms of the four areas of explanation for the possible relationships between research and its use in public policy processes, this evidence tended to support those which were listed earlier. However, the web of linkages appeared to be less prominent in the literature and to present particular problems in relation to Australian practice. Just as important, however, and perhaps even more so were the additional aspects which emerged, including:

- the complexity of situations arising in the real world, and the longer term build up of relevant factors, the need to consider dynamic (what movie is this snapshot from?), as well as static aspects, the blurring of many of the simpler theoretical boundaries and the difficulty in operationalising the definitions adopted (e.g. research; public policy as processes as well as decisions; possible differences between use and influence of research; action or use);
- the importance of sponsors or champions, whether in initiating the research, undertaking it or making effective use of the research results. If the Minister changes (case-study 2), the government is defeated or a key participant dies (case-study 4) there can be important effects on the relationship between research and use;
- the suggestion that "the ethos of the times" affects both the type and content of research, and also which types of research have audience and whether they are used.

---

[4] See C. Selby Smith, *ibid*, Vol. 2, Chapter 4, pp. 26-97.

In theory, a period of growth and professional development, such as the 1970's, may tend to produce research with a different emphasis from that produced, say, in the 1980's and 1990's, where the emphasis is on efficiency and managerial technique (although since this project only covered the period since 1980 it may not provide conclusive evidence for the suggestion). Linked with this can be changes in accepted methodology. Some nursing studies, for example, brought a feminist analysis to bear on issues, whereas other studies were more traditional in their approach;

- the widespread view that health labour force research in Australia was more likely to be acted upon if the group which is the subject of the research identifies with the composition of the committee or group undertaking the research. This is particularly important if the group in question have a strong political voice. This appeared to be supported by evidence from some of the case-studies, as well as other cases such as research into aboriginal health, changes in home and community care during the 1980's and the Commonwealth therapists' case in 1985. Success may be measured by inaction as well as by positive outcomes: for example, the success to the medical profession, individual universities and certain States of avoiding any recommendation from the Doherty Committee on medical education and the medical workforce in 1988 to close a medical school;

- the recognition that the public sector decision making process involves much more than research, more even than information to which research can contribute. Decision making processes are complex, can involve many interests and actors, may only involve changes over a considerable period (to which research may contribute, but not usually in a one-to-one sense), involves contending forces, including the force of ideas and critical opinion, on a continuing basis, is as much concerned with power and wealth as with truth (and often more so), and may not be fully rational from the viewpoint of any single participating group or individual;

- an elaboration of the first possible explanation above which stresses that there may be a difference between research in which changed purposes are in mind, on the one hand, and on the other, research which is concerned with techniques and implementation where purposes are taken as given. Perhaps the latter sort of research is more likely to be commissioned by those at the "business end" of the industry? The case-studies and discussions by project team members suggested that this perspective can differ between research settings, as well as between research areas and over time. For example, health labour force research in government agencies - less so perhaps in Ministerial committees or task forces - may give greater weight to the refinement of techniques (given purposes), whereas research in tertiary educational institutions, especially perhaps research unfunded by external grants, may be more concerned to question purposes;

- this confirms the importance of congruency between research results and decision makers' values and beliefs; it is not always easy to distinguish between the acceptance which policy makers accord to the research results and the acceptance accorded to the researcher; and

- the potential for the research process itself to be a linkage. Links with potential audiences during the course of the research can assist in establishing an audience in an environment where there is little time to read and evaluate journal articles and reports.

Health Technology Evaluations: In the earlier study, concerned with the public policy use of health technology assessments in Australia, it was suggested that the policy process will often be influenced by a number of factors and that unique measures of use or action may be difficult to define. (This also proved to be the case in the health labour force study.) Several specific factors were identified which appeared to act as reasons for the use of research (or its neglect) in that context:

- The quality of the study. We found that it is possible to overstate the importance of good study methodology, since "this is usually only a necessary, but not sufficient condition". Good methods alone appear not to be very convincing to the opponents of recommendations, although good methods can be important in defending research studies from attack by those who oppose their conclusions.

- Timeliness. It is often argued that if research is to be used it needs to be timely. We found that this factor can be important also for impact of particular health labour force studies in Australia. Certainly there are key stages where important decisions have to be, or can be, made and when research results are more likely to be used. Note, however, that timeliness can also relate to the broader economic and political environment within which research studies are undertaken and results presented (e.g. stage of the electoral cycle). It is clearly wrong to view the results of research studies, and their implementation, as quite independent of the decision making context prevailing at the time they become available.

- Decision maker involvement in the research. Independent researchers may minimise the potential for bias in study methods, but it is more likely that research results will be ignored in the decision making process. This could be because the decision makers are unaware of the studies concerned -and our results show that this can easily occur - or because the research does not address what the decision makers define as the relevant issues. It might be argued that involvement of the decision makers with the research study, perhaps by commissioning, providing a grant (or staff) for it or being involved through an advisory committee mechanism, may result in a greater likelihood of use (e.g. through addressing more relevant questions or making it harder for the decision makers to distance themselves from the conclusions). Of course, decision maker involvement is no guarantee that the study will be used, and in extreme cases their involvement may result in less satisfactory research studies (e.g. seeking to change the task midway through the study).

- Dissemination. For research studies to be useful they need to be focussed on matters of interest in the policy process and for the results to be widely known. The health studies found that attention to this matter was patchy at best (although ANTA RAC always took a strong stand in relation to this matter in the VET area). For example, some completed health labour force studies were not available publicly, and many proved hard to find. For researchers in tertiary education institutions publication in learned journals (often with limited circulation) may be a major aim, with other potential dissemination activities (such as interviews with the media or seminars for key decision makers) often given lower priority than commencement of the next study. On the other hand, there are concerns that certain sponsors might seek to

suppress particular research results.[5] One of the case studies underlined the importance of committees of enquiry and similar bodies paying careful attention to implementation and laying the groundwork for it if subsequent policy impact is to be maximised.

- Availability of policy instruments. In order for research studies to have an impact, decision makers need to have the appropriate mechanisms to make changes or implement suggestions resulting from research. In general, it is likely to be helpful if the researchers consider how the results of their studies might be used. However, there may be cases where key variables underlying research results are difficult to alter e.g. socio-economic factors, gender or race.

- Conflicts and incentives. There are many actors in the health care system and they often have different objectives: the situation is similar in vocational education and training. One respondent argued to the project team that as the number of groups or organisations involved with a research study grows, compromises tend to increase, implementation becomes more difficult and any concentrated focus on key problems and solutions becomes less likely (any credit is also likely to be more dispersed). In cases where there is commonality of interest, research results which are supportive of those interests are likely to have an impact. In other cases, perhaps more frequent, where interests are not coincident, researchers who wish their results to have an impact need to bear in mind the perspective of key stakeholders and their relative power - decision makers certainly will. It is suggested that, in these circumstances, it is likely to be helpful if the research results identify the costs and benefits according to the key perspectives and that attention is given to the structure of incentives facing the key stakeholders. If a "win-win" situation can be devised then what is beneficial from a societal perspective will also be in the interest of each major group or stakeholder.

Four Concluding Remarks

First, the availability and dissemination of research studies is important, if they are to be used for policy and planning, for changing practice and performance or for influencing community relations. There is also the wider question of who should market research, and to whom. Researchers themselves may not consider this to be their function: or be resourced to undertake it. Committees of inquiry, working groups or task forces which build into their activities, even into their recommendations, consideration of what should be done, by whom and when, could be said to have attended, in a way, to this need for marketing. Our studies showed that this was not always done.

Secondly, the relationships between decision making and action on the one hand and research on the other, can be considered from two broad perspectives: from the perspective of research or from the perspective of decision making. Our earlier studies indicated that the research perspective can narrow the focus of the investigator so that

---

[5] This issue has been raised in the context of research sponsored by the pharmaceutical industry. For example, see A. Hillman, M.J. Eisenberg, M.V. Pauly, *et al*, "Avoiding bias in the conduct and reporting of cost-effectiveness research sponsored by pharmaceutical companies", *New England Journal of Medicine*, 324 (19), 1991, pp. 1362-1365.

the impact of research is overstated (the "key hole" problem); such studies tend to focus on the research process and the research outcomes and to underestimate the complexity of the decision making process (particularly in government). Generally, the perspective of decision making and action is the primary focus in this project, including our quantitative studies.

The earlier studies also concluded that, from the perspectives of decision making and action, research is only one source of information and information from all sources is only one of a number of possible inputs into decision making. Of course, adoption of this perspective is not intended to imply any denigration of research's other important functions or that research should be subservient to decision making or action. Research has important objectives other than serving policy, especially if the latter is conceived as narrowly instrumental and short-term. It may well be that on occasion researchers can best contribute to the development of future policy by presenting challenging and varied points of view.

Thirdly, we stress the importance of the networks or web of linkages which connect researchers and public sector decision makers. Our review of the literature and our Australian studies confirm the initial impression that the institutional arrangements, resourcing levels and incentives whose task it is to transmit research outputs to decision makers and the needs of decision makers to researchers (i.e. the web of linkages) are far from adequate. The linkages can occur through both formal and informal channels. They can be embodied in a written form, but our studies suggest that embodiment in people is a particularly effective form of linkage between research and public sector decision making. At its best the people-level relationship is ongoing and interactive, a dynamic rather than a static web of linkages. One respondent stressed the importance of a critical mass of researchers and stable groups of informed sponsors and research users - and the difficulty of developing and maintaining them in a country like Australia with a small and dispersed population. Also effective linkages can be difficult to develop because of the differing time-scales of research and decision making. To the extent that key staff in the public sector decision making system (and related advisory structures) can foresee future needs where research may be able to contribute and are prepared to commission or otherwise initiate appropriate research in time for its results to be available when required they have a valuable role to play.[6] Mutual trust and interaction are desirable, and an investment portfolio-type approach is likely to be required, since the future can only be foreseen very inadequately. Furthermore, there can be difficulties in creating and maintaining effective networks, or webs of linkages, to the extent that there are differences in the values and cultures of the settings in which researchers and decision makers operate. Our view is that the notion of unidirectional influence, rather than mutually supportive interaction on an ongoing basis, serves the best interests of neither the research nor the public sector decision making communities.

---

[6] RADGAC - the Federal Government's research and development grants advisory committee -played this role with some success: for example, in relation to the development of Federal aged care policy during the 1980's.

Finally, it became apparent that the question of whether or not research studies have an effect on the public sector decision making process was only part of the issue. There was also the question of the *magnitude* of the impact - for particular studies and for particular decisions. It is clear that of those research studies which have an influence on decision making some have a much larger influence than others; and that of those decisions which are influenced by research studies some have a much greater impact on policy, on practice and ultimately on health status than others. This matter has received little attention in the literature so far and we suggested that it warrants further consideration.

Session 6 **Research, Decision Making and Action in Other Functional Areas of Government , and Internationally.**

Peter Winsley[1] **Prepared Paper**

SOME ECONOMIC ASPECTS OF HUMAN CAPITAL CREATION AND R&D

There are many forms of human capital creation, ranging from formalised education and training in a classroom setting, the inculcation of existing knowledge, and learning by doing. This paper addresses that part of human capital creation that is bound up or linked with research and technological development.

This paper is divided into two parts:

1. Some propositions relating to the economics of technological human capital.
2. Recent developments in science and technology policy in New Zealand relating to R&D and human capital development.

For the purposes of this paper, 'human capital' is a shorthand phrase for the skills, knowledge and competencies embodied in *people*. Technological human capital refers to those skills and that knowledge associated with the creation of significant new technology.

Propositions Relating to the Economics of Technological Human Capital

Propositions relating to the economics of technological human capital are as follows:

Growth in Per Capita Income Depends Largely on Technological Human Capital

No country can achieve high per capita income and economic performance without an advanced level of education and training. Knowledge and technology drives economic growth, but in turn human capital is the essential element in and drives the development of new knowledge and technology.

The accumulation of knowledge and skills (as most broadly defined) are the major causes of economic growth. The easiest way to demonstrate this is not to cite the great amount of theoretical and empirical evidence, including from Nobel Prize winning economists, but to ask, as Paul Romer once did, what would happen if the world was returned to the physical state that existed ten thousand years ago, wiping out all physical artefacts, buildings and engineering, but retaining the stock of human capital and knowledge? In such a case, current standards of economic performance would be recovered within a few decades, or at the most within a few generations. If the experiment was reversed, and all knowledge created over the last ten thousand years was lost, but the physical structures retained, it would take much longer to recover.

---

[1] New Zealand Foundation for Research, Science and Technology, Wellington.

A graphic historical illustration of this lesson occurred after World War 11 in both Japan and Germany. Most major cities in both countries were destroyed in a war that left their physical infrastructure shattered. And yet both countries retained sufficient of their human capital and knowledge base to recover within a very few years and outstrip most other countries within about a decade. Imagine the economic state of these two countries if all their educated people, libraries, research and educational institutions had been destroyed in the war, but their physical infrastructure was left intact.

Growth economics has demonstrated strong correlations between output and productivity growth and various proxies for human capital such as the literacy rate (Azariades and Drazen, 1990; Romer, 1989a). Romer (1989b) finds a positive correlation between the number of scientists and engineers employed in research and the growth rate of output in a sample of the most developed economies. Lichtenburg (1992) finds that the number of scientists and engineers and the level of R&D spending explain the growth in total factor productivity in OECD countries (see also Grossman and Helpman, 1994, p. 31).

There are Increasing rather than Diminishing Returns to Investment in Technological Human Capital

New growth theory demonstrates increasing rather than decreasing rates of return to research, human capital and technological investments. This challenges a key tenet of neoclassical economics, that of diminishing returns on the margin.

Technical change is irreversible in the sense that significant new technological advances can be superseded but not reversed. Major new technical advances build on technical platforms created by past research or technical change. Because technical change is irreversible it is also cumulative and boundless.

Human capital is often a rival good, but is also the crucial input into the production of new knowledge and technology, for example through R&D. Knowledge created through research is often non-rival and non-excludable. Non-rival goods are those economic goods associated with indivisibility in knowledge which can be widely copied, replicated and utilised in many companies at the same time. Non-rival ideas and knowledge can be used in many different applications in different companies and countries at the same time and one person's consumption of it does not stop another from using it. A feature of non-rival goods is that they lay a technical building block for future or downstream technical change and innovation. Non-rival knowledge, therefore, creates wider social benefits that cannot be captured by, for example, a company investing in education and training.

The Private Good View of Human Capital Needs to be Contrasted with a Synergistic View of Human Capital

The writings of economists such as Gary Becker suggest that human capital is a conventional tradeable good and that investment in education is the same as any other form of investment. Education is seen as an investment in human capital that has a

privately appropriable and a public good element. This view of education underpins efforts to derive the private and public components of a person's education, and to use this as a basis for deciding what proportion of the cost of education can be placed on a user pays basis. In New Zealand, for example, the goal is to charge students for about 25% of the cost of their education. This 25% of the cost of education is assessed as the privately appropriable element, with the public component being the 75% that will continue to be publicly funded.

An obvious weakness in this formula is that the cost of educational fees is determined by the cost structure of the discipline and by a standard formula for apportioning the costs between the student and the taxpayer rather than by the wider benefits of the investment, or even by the private earnings resulting from it. That is, education is input funded rather than being on an outcome purchasing basis. The result is that high input cost education such as dentistry and engineering costs far more than low input cost education such as the arts. Even if the cost of education was strongly related to its wider beneficial outcomes, a further market distortion is caused because the private cost of education does not necessarily reflect private earning power. There is evidence that this asymmetry between fees and earning potential in New Zealand is even turning students away from high earning, high input cost professions such as medicine in favour of high earning, low input cost disciplines such as law and commerce.

Economists such as Robert Lucas argue that human capital development creates spillovers and wider public benefits in ways quite different to a standard public/private good split in the benefits of education. The work of Lucas and Romer establishes that it is investment in human capital rather than investment in physical capital that has spillovers that increase the level of technology (Romer, 1994b). The fundamental difficulty with the traditional human capital model is the indivisibility of much education and human capital creation, and the interplay and synergies that occur within educated communities. That is, when individuals accumulate new human capital, they inadvertently contribute to the productivity of capital held by others. This occurs at the level of individuals, firms and countries.

It is important that educational and training infrastructure recognises the synergistic elements in human capital development and that we avoid the trap of funding vocational training as if it were always an industry-specific investment. Unfortunately, New Zealand has established many more Industry Training Organisations (ITOs) than much bigger and more complex economies such as Germany and Australia, which implies a very fragmented and industry-specific approach to training needs.

Human Capital Factors mean that Technology Gaps between Countries may Widen rather than Reduce

The irreversibility, path dependency and cumulativeness of technology creates a technology gap between countries. It is futile to close this technology gap through a relay race, or by transferring yesterday's technology. To transfer historical technology without any improvements and adaptation simply entrenches a technology gap. It is more productive to research and develop new technology in close interaction with lead users

and to focus this research as much on skill development and absorptive capacity as on creating new knowledge and new technology.

Factors such as the irreversibility of technical change and localised learning account for differences between companies and countries in behaviour, innovative output and technological competitiveness. An important implication of the irreversibility, and therefore the cumulativeness of technical change, is the creation of a "Mathew Effect" in technology gaps between countries: *To he who hath shall be given even more.*

Neoclassical economics holds that the price of skilled labour will be a function of scarcity and that, with freely available international technology, countries with less human capital will see more people train to chase the higher salaries that they can earn. This will eventually lead to economic convergence and a closing of the technological and per capita income gap between countries. However, Lucas (1988) observes that people who are richly endowed with human capital migrate from countries where it is scarce to countries where it is abundant (see also Romer, 1994b, p. 19).

Lucas (1988) emphasises that international patterns of migration and wage differentials are difficult to reconcile with neoclassical economic models. An understanding of human capital sheds light on why it is beneficial even for countries such as China and India with very large populations and domestic markets to engage in international trade. Romer (1990) shows that what is important is not trade with large markets, but trade with markets with high quality human capital.

R&D Creates Human Capital as well as Knowledge

The outcome of research is co-produced goods: systematically created knowledge and the creation of human capital. Skills and research training allow scientists to undertake research. And the act of conducting research itself creates skills and competencies of value independently of the knowledge created. The co-location of education and research is synergistic and a two-plus-two-equals-six phenomenon.

Studies have shown that "the main economic benefits from basic research are not published information but a supply of scientists and engineers with problem solving skills, comprising background knowledge, familiarity with research methodologies and instrumentation, and membership of informal and often professional networks" (see Gibbons and Johnston, 1974; Nelson and Levin, 1986; Pavitt, 1991; Rosenberg and Nelson, 1992; Senker and Faulkner, 1992). Irvine and Martin (1980) demonstrate that postgraduate research in radio-astronomy created substantial net economic benefits not through the ***knowledge*** created by post-graduates, but because it developed ***skills*** in advanced technologies that were applied in companies that later employed them.

Basic research can therefore be justified purely on the basis of its contribution to human capital creation and skills development. The knowledge it creates tends to be international and the ability to exploit it depends on the complementary technology management assets, not on the country of origin. Strategic research is also as much about creating skills as knowledge. This is especially so in differentiated sectors where

innovation is often firm-specific and more dependent on skills than on new scientific advances, and where it is difficult to identify generic knowledge gaps of importance to more than one player.

The formally published and codified knowledge created through such research is less important than the skills it develops and the tacit and uncodified knowledge and competencies in the minds of young graduates who then work in industry.

The distinguished American economist Paul Romer says:

> "...the kind of knowledge that collects in a person's head is more important for economic activity than the kind that collects on paper. The movement of people from the university sector to the private sector - when a new PhD takes a job with a private firm or when a working scientist creates a start-up company - is therefore the crucial channel through which universities contribute to economic activity" (personal communication to author, June 1994).

Research-based human capital development is needed to absorb new technology and R&D results from both local and international sources. It helps create the networks and technical competencies that allow both countries and companies to scan the environment, interpret, adapt and commercialise external technology. Overseas and domestic R&D are complements and not substitutes, and the interaction between them is synergic and involves scope economies rather than being additive. As Coe and Helpman (1993, p.1) point out, "own [domestic] R&D enhances a country's benefits from foreign technical advances, and the better a country takes advantage of technological advances in the rest of the world the more productive it becomes."

Even if it were possible to adopt overseas technology without a strong domestic R&D base, it is not likely countries could "free-ride" or obtain such technology cheaply. The price paid for technology embodies the costs of R&D, as reflected in price premiums for technology-based products. Countries therefore pay for R&D either directly by performing it themselves, or indirectly in the cost to them of imported embodied technology. In not undertaking the R&D themselves, but paying someone to do it for them, such countries are foregoing the tacit and uncodified outputs of research, such as upgrading the ability to search for and interpret new technology-based market opportunities.

Recent Developments in Science and Technology Policy in New Zealand Relating to Skill Development and Human Capital Creation

There are two significant new developments in New Zealand science and technology policy relating to human capital development: an increased emphasis on human capital development as an output of public investment in research; and a more fine-grained approach to R&D, technological learning and knowledge application through developing and applying a taxonomy of differentiated learning and knowledge application in the economy.

Human Capital Development as an Output of Public Investment in R&D

There is overwhelming international evidence that the human capital, skills and competencies available *within* companies, regardless of whether those companies undertake R&D, lies at the heart of technological competitiveness. Companies undertake R&D to create new knowledge and technology. Technical competencies also give companies an ability to scan the external environment, and to search for and adopt externally generated sources of technology. For these reasons, the willingness of the Government in New Zealand to invest in R&D is becoming increasingly conditional on industry and other stakeholder groups developing their own research strategies and investing in R&D.

A base level of skills and human capital in a company or country is needed to adopt externally generated technology, and is a major factor in companies being early adopters of new technology (Wozniak, 1987, p. 110). A major difficulty with many industry sectors in New Zealand is not the quality or strategic focus of publicly funded science but the low receptivity to this technology in industry, which of course reflects their lack of human capital.

The most effective mechanism to increase private sector R&D may well be public funding of the key input, human capital, rather than subsidising industrial research *per se*. But human capital development policies must of course be targeted and discriminating. The best economic outcomes will come from human capital that is an input into non-rival goods, which is managed strategically and which exploits the forms of technological learning that are appropriate for the company, industry sector or stakeholder group concerned.

It is increasingly recognised that the ability to turn research results and human capital into commercial performance is very context dependent. R&D-based technological innovation is often best undertaken within the strategic framework of firms that apply human capital to external opportunities, and which interact with both the market and the public technological structure. This model of technological innovation can be inelegantly expressed as "technology times human capital times social processes times technological learning, within the strategic governance framework of a firm."

In the manufacturing sector, firms are very differentiated, their markets and competencies are often firm-specific, and commercial success may depend significantly on tacit and uncodified forms of knowledge, for example the knowledge a company's staff have about the production process. The context dependency and firm-specificity of innovation means that in some sectors much publicly funded R&D in future may best be conducted in firms rather than in centralised public research institutes. At the same time, the tacit and uncodified nature of human capital means that the mobility of people through the economy is the best form of technology transfer, so that increasingly, porous boundaries will be encouraged between the public technostructure and firms.

Developing a Taxonomy of Differentiated Technological Learning and Knowledge Application in New Zealand

It is clear from the literature (Kline, 1985; Gobeli and Brown, 1993) that while the traditional linear model of technology transfer from science providers to users may be appropriate for some sectors, it has severe limitations for many user groups, eg. manufacturing and information technologies.

The Foundation for Research, Science and Technology, as the major research funder in New Zealand, recognises that technological learning and knowledge application is highly differentiated and context-dependent, and affected by such variables as industry type and market structure, human capital in companies, type of technology, extent of dependence on international science and technology etc. Therefore, the way technological learning and knowledge application is approached must be tailored to the particular nature of the user sector concerned. The Foundation has therefore initiated a major project to develop and apply a taxonomy of technological learning and knowledge application in New Zealand.

Technological learning is defined as the process of converting information gained from research or other sources into knowledge. Knowledge application involves use of the knowledge gained from technological learning to generate socio-economic benefits.

An overview of the technological learning and knowledge application literature is set out in Annex 1.

Key propositions underlying the Foundation's project on technological learning and knowledge application are as follows:

Forms of Technological Learning are Differentiated

Forms of learning include, *inter alia,* systematic research and development, learning by doing (Arrow, 1962), learning from users (Maideque and Zirger, 1985), learning from suppliers, from employees, from competitors (Pavitt, 1984) and network learning (Foray, 1993). Traditional models of technology transfer assume that scientific results can be codified, for example in published papers or blueprints. However, much knowledge is tacit or uncodified "know how" that is not easily transmitted in a codified form. Such knowledge or technology can best be transferred through the movement of people, or through conducting the research or the technological learning activity within the organisation that will eventually commercialise the results.

Technological learning is also very context-dependent. The rate and direction of technological learning is influenced by its context, relationships with users and with the external environment.

Sources of Technological Learning are Differentiated

There is overwhelming evidence that the sources of learning are differentiated in accord with such variables as firm size and ownership, industry sector, market structure, nature of the technology, and a host of internal and external relationships and interactions. To illustrate, some major sawmilling and solid wood product innovations have only been adopted in industry when New Zealand's Forest Research Institute abandoned direct transfer to sawmilling companies in favour of working through adhesives, wood drying and other intermediary companies and technical suppliers. Unlike pastoral farming, the sources of learning in animal sectors such as pigs and poultry tend to be from nutritionists, veterinary staff and other technologists in feed and animal remedies suppliers, rather than directly from research institutes.

Much Technological Learning Occurs in Productive Activity

Technological learning often results from productive activity, whether in factories, farms, orchards or other enterprises. Much of this is learning by doing, based on trial and error, feedback, and adaptations. Such learning is often tacit and unrecorded. It tends only to occur when people are doing things in a real productive setting, and is often difficult to replicate in controlled experimental conditions in a laboratory.

Technological Innovation Requires Complementary Assets

Even the most science or research-intensive innovation requires non-research complementary assets to be successful. These complementary assets may include market information, production technology, quality management input, and a host of other variables.

Knowledge Creates Outcomes only when Applied

Research and other inventive activity creates information which only becomes knowledge when it is absorbed and understood. This knowledge only leads to outcomes when it is productively applied. The absorptive capacity of users and their ability to interpret and apply scientific outputs in productive activity are key factors in the effectiveness of the science system.

Learning is Accelerated by External Sources of Ideas and Stimulus

External interactions, challenge, intellectual stimulation and new ideas accelerate the rate of learning. The implications of this extend to collaboration, peer review and trade policy. For example, Coe and Helpman (1993) argue that the more open a trade policy the more overseas R&D can be exploited to boost domestic productivity. Many studies of technological learning highlight its dependence on interactiveness (see Stiglitz, 1987; Lundvall, 1992; Freeman, 1994). Parenthetically, this lends support to the emphasis placed in the Foundation's research strategies on interactive and ongoing relationships between science providers and users.

Annex 1

Overview of the Technological Learning Literature

A brief overview of some key literature relating to technological learning is helpful. This overview only covers literature on technological learning, and does not cover the much wider body of literature relating to technology transfer and knowledge application within specific industry sectors.

A view of technological innovation as a learning process is linked with work on the economics of information, human capital, intangible assets and technology strategy (see Arrow, 1962; Arrow 1984; Lamberton, 1986; Stiglitz, 1987; Dodgson, 1990).

The Nobel Prize winning economist Kenneth Arrow argued that:

> "I do not think that the picture of technical change as a vast and prolonged process of learning about the environment in which we operate is in any way a far-fetched analogy." (Arrow, 1962).

Lamberton (1986) saw information as a fundamental influence on the division of labour, and noted that the cost of producing information is independent of the scale on which it is used. Lamberton argued that information is a form of capital that is differentiated in terms of its possession and in the capacity to use it. The uncertainty and indivisibility of information means that it behaves differently to other economic goods, and does not fit easily into a traditional production function mode of analysis. Significantly, learning only occurs when information is absorbed and understood. Cohen and Levinthal (1990) argue that the ability to understand and apply new ideas is a function of the firm's level of prior related knowledge, that learning is cumulative, and that learning performance is greatest when the object of learning is related to what is already known.

Learning has both tactical and strategic elements. At a tactical level within an existing technological regime it may encompass short-term, event-driven, adaptive learning ("survival learning"), as well as maintenance learning and transitional learning (see Bowonder and Miyake, 1993). However, major new innovations and the exploitation of new technological paradigms requires strategic, systems-based thinking and learning. Senge (1990) emphasises that it is generative learning that underpins the ability to create, and that generative learning requires strategic and systems-based thinking. Rickards (1985) saw innovation as "whole systems" in nature, encompassing social processes and participation by various communities of interest. It is also a matching process, where 'fit' must be achieved between technology, organisation and market needs.

It is argued that technological learning, rather than being confined to one model, is a highly differentiated process, depending on variables such as firm size, ownership, industry structure, nature of the technology and the market, and a host of internal and external relationships. To better understand the differentiated nature of learning, it is necessary to examine the information stocks and flows involved in a firm's operations, encompassing the generation and acquisition of information, and the learning processes

through which information is processed and utilised (see Malerba, 1992). The capability of firms to productively using information is very differentiated, encompassing perceptions of its value, the effect of channels of communication, and the relationship between human capital and the absorptive capacity in a firm. Learning occurs both internally and externally. While the precise pattern of internal and external learning varies with such factors as firm size and industry sector, all firms make use of external sources (see Foray, 1991; Kleinknecht and Reijnen, 1992).

Forms of Technological Learning

It is useful to distinguish between major forms of learning, such as from systematic R&D, organisational and team learning, learning by doing, and learning from interacting and networking.

Learning from R&D

Traditional models of technological innovation see it as the result of systematic scientific research and development. However, R&D is better seen as a process of both creating information and enhancing a firm's ability to assimilate and exploit existing information (Cohn and Levinthal, 1989). Lamberton (1992) replaces a narrow view of R&D as a formalised and separately structured learning activity with a wider view of R&D as part of the exploratory behaviour of firms. More importantly, R&D should be seen as only one of many forms of learning.

Organisational and Team Learning

Generally, learning must happen at both an individual level and a team level if organisational learning is to occur. Learning tends to be context-dependent, and bound up with wider organisational processes. Dodgson (1990) argued that strategies for technological learning are inseparable from considerations of organisational structure and human resource management. Senge (1990) saw organisational learning revolving around long-term systems and team-based learning. Team learning requires thinking insightfully about complex issues, with the team's collective learning being more than the sum of the individual learning of team members. A team also fosters the learning of other teams it interacts with.

Team learning depends on effective relationships between people, and on operational trust (see Senge, 1990). Trust is a key element in learning, since people are more likely to accept information from people they have contact with and trust than from strangers. This trust reflects past behaviour and experience, "truth telling", and the building of reputation. Sako (1992) and Sabel (1993) emphasise the importance of trust in networking relationships, and therefore in learning through networking.

Learning by Doing

Arrow (1962) argued that learning is the product of experience, and can only take place through attempting to solve problems, and therefore only takes place during activity.

Senge (1990) also stressed that learning must be grounded in reality. Learning associated with repetition of essentially the same problem is subject to sharply diminishing returns. To have steadily increasing performance in learning therefore implies that the stimulus situations must themselves be steadily evolving rather than merely repeating (Arrow, 1962, pp. 155-6).

Arrow cited as empirical support a study of the Horndal iron works in Sweden that had no new investment or significant changes in its methods of production for a period of 15 years, yet productivity (output per person-hour) rose on the average at close to 2% per annum. Learning by doing is lent further support by the extensive literature on "learning curve" effects (see Maidique and Zirger, 1985, p. 305). Later work on learning by doing has associated it with production and information-intensive industries (see Dodgson and Rothwell, 1994).

A limit to learning by doing is that it is most effective when there is rapid and unambiguous feedback from actions. It is less effective when the consequences of actions are not immediately obvious, are dependent on the unpredictable responses of others, or have long-term systemic impacts. Learning by doing is most effective in production processes undergoing incremental technical change. It is less appropriate for systems-based innovation, or in technological paradigms where the knowledge base is rapidly changing due to external scientific and technological dynamics, and where the knowledge base depends for its development on external and more interactive learning processes.

Other forms of learning are associated with learning by doing. Nathan Rosenberg (see Maidique and Zirger, 1985, pp. 305-6) highlighted learning from using. Dodgson and Rothwell (1994) associate learning by using with specialised suppliers of capital and intermediate goods. While learning by doing is internal to a production process, learning by using is external and results from users gaining experience with a new product or process. This external learning by using creates two types of useful knowledge. First, learning is "embodied" in design modifications that improve performance, useability or reliability. Secondly, disembodied learning results in improved operation of the modified product. Maidique and Zirger (1985) and Freeman (ed. 1994) also highlight "learning from failing", citing IBM's Stretch computer as the "failure" that formed part of the learning leading to the successful 360 series. This form of learning is often associated with new product launches.

Learning by Interacting and Networking

Numerous studies lend support to a view of innovation in firms as a process of continuous, interactive learning (Stiglitz, 1987; Freeman and Lundvall, 1988; Lundvall, 1992). Interactive learning includes learning resulting from external interactions with customers and suppliers. Dodgson and Rothwell (1994) highlight interactive learning from competitors. Freeman (1994) explores the cumulativeness of interactive learning, while Lundvall (1992) argues that innovation and growth in firms is a process of continuous, interactive learning that also draws on routine activities.

Interactive learning has strong external systemic and networking elements, as firms build external relationships as part of the information search and selection processes. Networking technologies, as well as being subject to declining marginal costs, share some of the economic traits of non-rival goods, forming technological platforms for other innovative advances, with high indivisibility and social benefits that may vastly exceed private returns. Associated with this, increasing returns sometimes arise from coordination externalities, an example being standardisation of the (allegedly sub-optimal) QWERTY keyboard (see Arthur,, 1989, p. 126).

While transaction cost theory argues that organisational form is driven by a need to reduce transaction costs, networking aims, *inter alia*, not to reduce costs but to access new ideas and sources of external technology and complementarities. The growth of networking as a firm strategy is starting to supersede market/hierarchical forms of organisation. Some of this networking may take the form of intra-firm and inter-firm learning, clusters of related industries and interlinked firms (see Debresson, 1989; Porter, 1990). The work of Van den Ven *et al* (1989) and Dodgson (1991, 1993) illustrate the importance of corporate strategy and government policy in developing networking relationships with external sources of information, knowledge and advice.

The specific nature of networking varies across industries, technologies and firm sizes (see Foray, 1991, 1993). Freeman (1994)) argues that external networks are growing in importance for such new technologies as materials, biotechnology and information technology that are increasingly dependent on science. Related to this, the discontinuity associated with rapid technical change in information technology and biotechnology is leading to new sources of learning, such as learning by recruiting new staff, and learning by networking with other firms and with universities.

Bibliography

Arrow, K. J. (1962). "The Economic Implications of Learning by Doing", *Review of Economic Studies*, Vol 29, No 80, pp 155-173.

Arrow, K. J. (1971). *Essays in the Theory of Risk-Bearing*. Chicago, Markham, 278pp.

Arrow, K. J. (1984). *The Economics of Information. Collected Papers vol 4*. Oxford, Blackwell.

Azariades, C. and Drazen, A. (1990). "Threshold Externalities in Economic Development", *Quarterly Journal of Economics*, 105, pp 501-526.

Bernstein, J. I. and Nadiri, M. I. (1988). "Interindustry R&D Spillovers, Rates of Return, and Production in High-Tech Industries", *American Economic Review* 78:2, pp 429-434.

Brezis, E. S., Krugman, P. R. and Tsiddon, D. (1993). "Leapfrogging in International Competition: A Theory of Cycles in National Technological Leadership", *American Economic Review*, December 1993, pp. 1222-1219.

Coe, D.T. and Helpman, E. (1993). *International R&D Spillovers*. Working Paper of the International Monetary Fund, 32 pp.

Cohn, S. F. and Levinthal, D. A. (1989). "Innovation and Learning: The Two Faces of R&D", *The Economic Journal*, Vol 99 (397), pp 569-595.

Dodgson, M. (1990). *Technical Learning, Technology Strategy and Competitive Pressures*. DRC Discussion Paper No 77. Brighton, Science Policy Research Unit, University of Sussex. 25pp.

Dodgson, M. (1991). *The Management of Technological Learning: Lessons from a Biotechnology Company*, Berlin, De Gruyter.

Dodgson, M. (1993). *Technological Collaboration in Industry*, London, Routledge.

Dodgson, M. and Rothwell, R. (eds) (1994). *The Handbook of Industrial Innovation*, Aldershot, Edward Elgar, 453pp.

Dosi, G., Freeman, C., Nelson, R., Silverberg, G. and Soete, L. (eds) (1988). *Technical Change and Economic Theory*, London, Pinter, 646pp.

Dosi, G., Pavift, K. and Soete, L. (1990). *The Economics of Technical Change and International Trade*, New York, Harvester Wheatsheaf, 303pp.

Fagerberg, J. (1995). "User-producer interaction, learning and comparative advantage", *Cambridge Journal of Economics*, 19, pp 243-256.

Foray, D. (1991). "The Secrets of Industry are in the Air: Industrial Cooperation and the Organisational Dynamics of the Innovative Firm", *Research Policy*, Vol 20, No *5*, pp 393-405.

Foray, D. and Freeman, C. (eds) (1993). *Technology and the Wealth of Nations: The Dynamics of Constructed Advantage*, London, Pinter, 406pp.

Freeman, C. (ed) (1994). "Critical Survey: The Economics of Technical Change", *Cambridge Journal of Economics*, 18, pp 463-514.

Freeman, C. and Lundvall, B.A. (eds) (1988). *Small Countries Facing the Technological Revolution*, London, Pinter Publishers, 303pp.

Gibbons, M. and Johnston, R. (1974). "The Role of Science in Technological Innovation", *Research Policy*, Vol 3, No 3.

Gobeli, D. H. and Brown, D.J. (1993). "Improving the Process of Product Innovation", *Research Technology Management*, pp 38-44.

Grabowski, H.G. and Mueller, D.C. (1978). "Industrial Research and Development: Intangible Capital Stocks and Firm Profit Rates", *Bell Journal of Economics*, Vol 9, No 2, pp 328-343.

Groenewegen, P. (1992). "Stimulating 'Hot Technologies': Interorganizational Networks in Dutch Ceramic Research", *R&D Management*, Vol 22, No 4, pp 291-292.

Grossman, G. M. and Helpman, E. (1991a). *Innovation and Growth in the Global Economy*, Cambridge, Massachusetts, MIT Press, 359 pp.

Grossman, G. M. and Helpman, E. (1991b). "Quality Ladders in the Theory of Growth", *Review of Economic Studies*, 58.

Grossman, G.M. and Helpman, E. (1994). "Endogenous Innovation in the Theory of Growth", *Journal of Economic Perspectives*, Vol 8, No 1, pp 23-44.

Horwitch, M. (ed) (1986). *Technology in the Modern Corporation*, New York, Pergamon Press, 232pp.

Irvine, J. and Martin, B. (1980). "The economic effects of big science: the case of radio-astronomy", in: *Proceedings of the International Colloquium on Economic Effects of Space and Other Advanced Technologies*, Ref ESA SP 151, European Space Agency.

Kleinknecht, A. and Reijnen, J.O.N. (1992). "Why Do Firms Cooperate on R&D? An Empirical Study", *Research Policy*, Vol 21, No 4, pp 347-360.

Kline, S. J. (1985). "Innovation is Not a Linear Process", *Research Management*, Vol 28, No 4, pp 36-45.

Lamberton, D. M. (1986). "Information, Economic Analysis and Public Policy", *Prometheus*, 4 (1), pp 174-186.

Lamberton, D. M. (1992). "Information, Exploratory Behaviour and the Design of Organisations", *Human Systems Management*, Vol 11, No 2, pp 61-65.

Levy, D.M. and Terleckyj, N.E. (1983). "Effects of Government R&D on Private R&D Investments and Productivity: a Macroeconomic Analysis", *Bell Journal of Economics*, 14, pp 551-561.

Lichtenberg, F. R. (1992). *R&D Investment and International Productivity Differences*, Working Paper No. 4161, National Bureau of Economic Research, Cambridge, Massachusetts.

Lundvall, B. A. (ed) (1992). *National Systems of Innovation. Towards a Theory of Innovation and Interactive Learning*, London, Pinter.

Lucas, R. E. (1988). "On the Mechanics of Economic Development", *Journal of Monetary Economics*, Vol 22, No 1, pp 3-42.

Maidique, M. A. and Zirger, B. J. (1985). "The new product learning cycle", *Research Policy*, 14, pp 299-313.

Malerba, F. (1992). "Learning by Firms and Incremental Technical Change", *Economic Journal*, Vol 102, pp 845-859.

Malerba, F. and Orsenigo, L. (1993). "Technological Regimes and Firm Behaviour", *Industrial and Corporate Change*, Vol 2, No 1, pp 45-71.

McGuinness, N. W. and Conway, H. A. (1989). "Managing the Search for New Product Concepts: A Strategic Approach", *R&D Management*, Vol 19, No 4, pp 297-308.

Nelson, R. and Levin, R. (1986). *The Influence of Science, University Research and Technical Societies on Industrial R&D and Technical Advance*, Policy Discussion Paper Series No 3, Yale University.

Pavitt, K. (1984). "Sectoral Patterns of Technical Change: Towards a taxonomy and a theory", *Research Policy*, 13 (6), pp. 343-373.

Pavitt, K. (1991). "What Makes Basic Research Economically Useful?", *Research Policy*, 20, pp 109-119.

Pernings, J.M. and Buitendam, A. (eds) (1987). *New Technology as Organisational Innovation. The Development and Diffusion of Microelectronics*. Cambridge, Massachusetts, Ballinger, 308pp.

Romer, P.M. (1986). "Increasing Returns and Long Run Growth", *Journal of Political Economy*, Vol 94, No 5, pp 1002-1037.

Romer, P.M (1989a). *Human Capital and Growth: Theory and Evidence*. NBER Working Paper No 3173, Cambridge, MA.

Romer, P.M (1989b). *What Determines the Rate of Growth and Technical Change?*, The World Bank, Working Paper No WPS 279, Washington DC.

Romer, P.M. (1990). "Endogenous Technological Change", *Journal of Political Economy*, Vol 98, No 5, Pt 2, pp 70-102.

Romer, P.M. (1994a). Personal communication to Peter Winsley, 16 June 1994.

Romer, P.M. (1994b). "The Origins of Endogenous Growth", *Journal of Economic Perspectives*, Vol 8, No 1, pp 3-22.

Rosenberg, N. and Nelson, R. (1992). *American Universities and Technical Advance in Industry,* Centre for Economic Policy Research, Stanford University.

Rosenbloom, R.S. and Burgelman, R.A. (eds) (1989). *Research on Technological Innovation, Management and Public Policy*, 281pp.

Sabel, C.F. (1993). "Studied Trust: Building New Forms of Cooperation in a Volatile Economy", in: Foray, D. and Freeman, C. (eds) (1993).

Sako, M. (1992). *Contracts, Prices and Trust: How the Japanese Manage Their Subcontracting Relationships,* Oxford, Oxford University Press.

Scherer, F.M. (1982). "Interindustry Technology Flows and Productivity Growth", *Review of Economics and Statistics,* 64, pp 627-634.

Senge, P. (1990). *The Fifth Discipline. The Art and Practice of the Learning Organisation,* London, Century Press, 424pp.

Senker, J. and Faulkner, W. (1992). "Industrial Use of Public Sector Research in Advanced Technologies: A Comparison of Biotechnology and Ceramics", *R&D Management*, Vol 22, No 2, pp 157-175.

Stiglitz, J.E. (1987). "Learning to Learn, Localised Learning and Technological Progress", pp125-153 in: Dasgupta, P. and Stoneman, P. (eds) (1987). *Economic Policy and Technological Performance,* Cambridge, Cambridge University Press, 243 pp.

Van den Ven, A.H., Angle, H.L. and Poole, M.S. (eds) (1989). *Research on the Management of Innovation: The Minnesota Studies,* New York, Harper and Row, 720pp.

Wozniak, G.D. (1987). "Human Capital, Information, and the Early Adoption of New Technology", *Journal of Human Resources,* Vol 22, No 1, pp 101-112.

Young, A. (1993). "Invention and Bounded Learning by Doing" *Journal of Political Economy,* pp 443-472.

Session 6 Research, Decision Making and Action in Other Functional Areas of Government , and Internationally.

Russell Rumberger[1] **Spoken Comments**

Rumberger noted that virtually all countries need to address the issues which were the subject of the symposium. Comparing Australia with the United States there appear to be many similarities in relation to this issues (and some differences). Of course, it is easier to observe or describe, as in other areas, rather than to understand fully the factors at work, to analyse the phenomenon comprehensively or to fully explain what is occurring. Against this broad background, Rumberger spoke particularly to four matters.

The first matter concerned the nature of research. There is a broad range of research in the US, as in Australia, but one category, "partisan research" has been little mentioned so far during the symposium. It tends to be located outside the university setting; it is related to the growth of interest group activities in US politics. Partisan research operates directly on politicians and bureaucrats, seeking to inform and persuade them; but it also seeks to influence public opinion or community attitudes and thus policy perspectives and decisions indirectly. Partisan research includes quasi-research institutes, professionally orientated research organisations which have a political agenda, such as the National Rifle Association or the American Tobacco Institute. Others have a broader interest and tend to be more politically aligned in terms of "the left" or "the right", such as the American Heritage Foundation. Perhaps cuts in government are one of the reasons for the increasing role of such groups.

Rumberger made two related points. First, that evaluations of good practice can be important, but tend to be relatively lacking in the research literature. Even those which are funded are not necessarily scientifically valid. In the practitioner world they are often not seen as particularly important; many practices or policies are strongly advocated by governments or practitioners, perpetuated, even expanded, without having been subject to careful evaluation (or indeed any evaluation at all). Secondly, there are some structural features why these conditions identified by Rumberger exist and continue. One he noted is the incentive structures in universities, which elevate some types of research over others in esteem (cf pure or basic research over applied research), the research training they provide and the structure of rewards within them (eg. at the University of California promotion is dependent on peer review and therefore on a record of scholarly publication in prestigous refereed journals). To change current patterns of behaviour is likely to require changes in the incentive structures facing researchers and their institutions.

Secondly, Rumberger commented on dissemination, where he identified an important role for intermediaries ("brokers"). Researchers need not be, and often are not, the best disseminators of research knowledge. In Rumberger's view intermediaries between

[1] Professor Rumberger was visiting the Monash University - ACER Centre from the Graduate School of Education, University of California at Santa Barbara, U.S.A..

researchers and both policy makers and practitioners are important. If so, it is relevant to ask how the process can be structured and supported so that it works well. In the US a National Diffusion Network is being established to document and evaluate best practices and to diffuse them by making the broader education community more aware of them. Professional organisations can also have a valuable role to play. If one adopts the wide definition of policy making that Rumberger advocates then community attitudes play an important role in changing (or not changing) policy and practice. Research and its dissemination can help shape wider public perceptions of what is happening, and what can be changed, and hence influence the potential support for particular educational policies or practices. The media plays a significant role in shaping public attitudes, which in turn affect policies, practice and priorities. As we know, policy makers generally do not read books or journal articles, but they are often sensitive to newspaper headlines or other media reports.

Thirdly, Rumberger considered the use of research at the local level. Research can be valuable for individual education providers; and he argues for a broader view of how research does or does not get used in practice (and why). Action research can be valuable, but again university incentive structures tend to militate against it. He argued that, while the generation of new knowledge is important, research can also be valuable in relation to synthesis and the integration of knowledge; and that, perhaps, the balance should be tilted rather more in favour of the latter. Rumberger argued, too, for the value of local, specific knowledge, especially in relation to practice, the creative application of policy and a focus on outcomes for stakeholders.

Finally, international, inter-State or inter-regional comparative studies can be valuable. In fact, a whole series of national experiments are in place. Why are the differences occurring?; what are the reasons and the outcomes?; what can we learn from each other? For example, while VET is being expanded in schools at present in Australia, the move is in the other direction in the United States.

Session 6 Research, Decision Making and Action in Other Functional Areas of Government , and Internationally.

Other Matters Raised in the Discussion Period

From the discussion period following the prepared presentations, four points are noted. First, the assessment of VET in general, in broad public opinion or in the media may differ greatly from the assessments by individuals or organisations who are closely involved in VET, either on the supply side or the demand side. If so, it was queried where the general stereotypes came from; and perhaps whether efforts should be made to change them, and how (including the role for researchers, if any). It was suggested that researchers may not see this as their business and may be naive in relation to public policy, the media and active participation in public forums. On the other hand, they may have highly relevant information which is not in accord with the community stereotypes.

Secondly, it was suggested that historically many countries have tended to divorce different types of learning from each other, eg. university education and apprenticeships. However, it was argued that currently there are attempts, conceptually, to ensure that learning of a wide range of types leads into outcomes of various kinds, including for individuals, firms and the wider society. This is not to deny that different modes of learning may be appropriate, for example, in different settings, for different learners or in different firms. However, it was argued that the commonalities are becoming increasingly recognised; there is also greater flexibility, with the boundaries becoming "more permeable and fuzzy".

Thirdly, it was queried whether the original research brief from ANTA RAC was misspecified. In a sense, one may need to know the answer, at least in general terms, before one can fully satisfactorily specify the question. It was agreed that the research project, certainly with the limited time and resources available, will not be able to do all that could conceivably be worth doing: in that sense it is a "heroic project". But even if all relevant matters are not fully covered the project could still raise a range of significant aspects of an important topic, identifying other aspects which might warrant further inquiry and make some contribution to improving our knowledge of the area. If relevant matters, in the judgment of the research team arise, it was conceded that they might not be possible to explore fully, but they might be noted and, if time and resources permit, be explored to some degree. Whether users wish to adopt them or to pursue them further is a matter for them, but at least they would be able to do so if they wished. In some cases, users may benefit from, even welcome, clarification of the appropriate questions as well as a closer approach to specific answers.

Finally, it was emphasised that training, despite its importance, is not an end in itself. It is a means to achieving other ends, an intermediate product or input, which can contribute to improved outcomes for individuals and for the wider society, including enterprises. Furthermore, the achievement of these outcomes is not generally dependent on training inputs alone, but influenced by a wide range of other factors. These other factors, such as technology, management, industry structure or the capital-labour ratio,

can be important themselves: they can also interact with each other and with training in complex ways.

Session 7 Final Plenary Discussion.

Some additional points to those made earlier in the symposium, covering three areas, were raised in the final plenary discussion. First, there were points relating to how research in VET might affect community relations (and vice versa). Clearly community relations can influence the research which is undertaken and "the how and when aspects of what is done". Indeed, community attitudes and actions can generate research studies which can influence both individual projects and wider VET policy and practice. Participants at the symposium commented on the diversity of communities; sought to distinguish between broad community views and other, perhaps more self-interested sectional views; queried whether those who claimed to speak for a particular group (eg. industry bureaucrats for business) necessarily represented the views of individual enterprises accurately; distinguished between community relations and community awareness; argued that there is significantly less awareness in the general community about VET than about other areas of education or about science and technology matters; and emphasised the practical difficulties of undertaking effective consultation (while supporting the attempt).

Another important theme concerning community relations and research related to power. It was argued that research was seen by some players in the decision making systems as a weapon of advantage, to advance particular positions or to denigrate others, rather than as a disinterested search for truth and understanding; that community groups may feel, rightly or wrongly, that consultations are a charade rather than generally likely to influence change in the direction of outcomes they would see as more desirable, with adverse consequences for their willingness to participate; that purchasers of research can (and do) limit its circulation and availability; and that there can be great difficulties in conducting valid research or consultations between groups or individuals with widely different educational levels, income, prestige or power (eg. highly educated researchers, in the formal sense, compared to some ATSI people and communities or unemployed young people).

On a more optimistic note, it was pointed out that there is considerable circulation of information on developments in VET, such as the *Australian TAFE Teachers Journal, Australian Training* published by ANTA, or material published by VET research centres, individual researchers and NCVER. It was argued that, for VET research to broadly affect community relations, it needs to focus on the interests of community members, the "how does it affect me" syndrome. It was noted that in agriculture models of effective dissemination have been developed which build on this insight and which could be helpful models for VET research.

Finally, it was suggested that the sense of 'community' may vary eg. between country and city locations; and that it can be in conflict with the drive by VET system managers to rationalise and concentrate VET resources, as in the case of amalgamating TAFE colleges in different country towns into a broader regional institute or concentrating specialised VET activities into a limited number of centres.

Secondly, two matters were raised concerning the relationships between VET research and practice and performance at the level of individual training providers. First, it was argued that there is a gap between generalised policy at the level of national, State or Territory training authorities and practice and performance at the level of individual providers, indeed individual teachers and instructors. Research could assist to bridge this gap more effectively or more quickly, with beneficial effects on practice, performance and educational outcomes. Also, practical problems could be investigated, sometimes generally, probably more often in the context of varying local circumstances, and research could assist to meet these practical problems and, in certain cases, feed back into policy adjustments. In the longer run, evaluation of policy and practice should reveal what was working and what was not, and how improvements might be devised and implemented. It was argued that currently these links are weak; and that they could be strengthened, with beneficial results for educational outcomes. Adopting research approaches, research skills and research attitudes within VET providers, "an inward research perspective" as one symposium participant termed it, would enable policies to be more effectively implemented and also enable practical implementation issues to be fed back to modify policy, where appropriate.

The second matter raised concerned the learning styles of VET students and what assistance can be derived from research. McDonald noted that research has shown that adults learn better by working from the concrete to the abstract - but not all adults prefer this learning style, it is important that learners and learning styles are effectively matched and not all VET students are adults. Here is a matter where research can assist in the achievement of better practice and performance in VET; although dissemination and effective use of the research insights may still present difficulties in practice.

Thirdly, there were three other matters raised which relate to the symposium topic. First, there is the contested nature of VET, especially between Commonwealth and State or Territory governments, but also between business and unions, employers and employees and different States or Territories. This feature of VET makes for convoluted decision making and militates against clear lines of authority or desirable relationships between research, policy, practice and communities which might otherwise be easier to achieve. The present arrangements were widely characterised as "slow", "cumbersome", "complex", "frustrating" and "an uneasy set of compromises". The position is a satisficing rather than a maximising one; it is subject to change at short notice; and no one player's agenda holds uncontested sway. Factors other than research may be relatively more influential in such circumstances, especially in the short term.

Secondly, it was argued that community awareness, public opinion and the media tend to focus on simple messages and clear recommendations. Research studies, research workers and research attitudes may not be well placed to provide them, for reasons which had been explored earlier in the symposium. A senior policy maker stated that "they often do not want to know the complexities"; yet reading, thinking and wrestling with the complex issues may be essential for understanding them. Without adequate understanding both policy and practice can quickly be on very shaky foundations. Robinson had noted earlier that policies appear to be more enduring when they are based on full consultation and systematic research.

Finally, the importance of individuals was stressed; in research, in VET policy, in VET practice and in the relationships between them. It was argued that "ideas live through people"; and that without personal commitment, drive and capacity many visions for improvement, including those based on research, will be incompletely realised or not realised at all.

Appendix 1

Background Paper[1]

INTRODUCTION

ANTA RAC has specified that the research consultancy 'review the evidence for and where possible evaluate the extent of influence of research in vocational education and training'. The Council indicated that it is particularly interested in the impact of research in three areas of decision making and action:

- practice and performance;
- policy and planning; and
- community relations.

It has become apparent at the outset of the research project that certain aspects of the study require careful consideration before the project can be fully underway. Key terms require careful definition; the scope of the study, e.g. in terms of its focus and time frame, needs to be set down. Agreement among participants on these matters will assist in determining the overall perspective of the project and its boundaries, and ensure that concepts are applied consistently across the five main phases of the consultancy: literature review; symposium; quantitative studies; case studies; and overseas experience and perspectives.

In particular, we need to define:

- research, in the context of this particular project (1.1);
- the three areas of decision making and action which are the focus of ANTA RAC's attention (1.2);
  - policy and planning;
  - practice and performance;
  - community relations;
- 'impact' of research (1.3); and
- vocational education and training, the area in relation to which the decision making and action takes place (1.4).

We also need to determine the scope of the study in terms of:

- the boundaries of VET research (2.1);
- its geographical limits (2.2);
- the research time frame (2.3); and
- disciplinary approach (2.4).

[1] Circulated to participants prior to the symposium.

Finally, we need to reach agreement on the overall perspective of the project; that is, whether the relationship between research and decision making and action is to be considered primarily from the perspective of research or from the viewpoint of the decision makers and other actors in the VET system (or whether both approaches are equally valid).

1. DEFINITIONS

1.1 Research

The definition proposed is the OECD (Frascati Manual) definition for research and development (R&D) used by the Australian Bureau of Statistics as the basis for the Australian Standard Research Classification (ABS 1993).

> R&D comprises 'creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this knowledge to devise new applications'.

The ABS notes that R&D is 'characterised by originality. It has investigation as a primary objective ..... R&D ends when work is no longer primarily investigative' (ABS 1993, p.3).

The ABS recognises that there may be difficulties in separating the boundaries of R&D from the subsequent implementation phase. Listed among the 'obscure boundaries' having relevance to this particular project are:

- general purpose or routine data collection; and
- policy related studies.[2]

The ABS advise that 'collecting data in support of R&D work is included in R&D'. Data collection of a 'general nature', to record phenomena of a 'general public or government interest' is excluded.

- Notwithstanding this advice, we consider there is value in listing such data collections for the benefit of researchers and other users. We will include them in the inventory of VET research which will result from this project.

In relation to policy related studies, the ABS concedes that to determine the boundaries is 'complex' and that 'rigour' is required. Substantively, the ABS advises that 'studies to determine the effects of a specific national policy to a particular economic or social condition or social group have elements of R&D. Routine management studies or efficiency studies are excluded' (ABS 1993, p.4).

---

[2] Policy related studies are defined in the Frascati Manual to include "analysis and assessment of existing programs, continued analysis and monitoring of external phenomena (e.g. defence and security analysis), legislative inquiry concerned with general government departmental policy or operations" (ABS 1993, p.4).

- Again, notwithstanding this advice, our view is that the ANTA RAC brief would favour the inclusion of routine management studies and efficiency studies, particularly in relation to 'practice and performance'. In fact, the principle of inclusion will characterise our approach to 'research' in all phases of the project.

Defining research by reference to its essential attributes.

The ABS definition is useful for defining the boundaries between what does and what does not constitute research for the purposes of an inventory. However, in a previous study which sought to establish the role of research in public policy decision making (C. Selby Smith et al 1992a), we found that the ABS definition needed to be teased out further to identify those essential attributes of research which are the inputs into decision making. We may also define research by reference to these attributes.

A common starting point in the literature has been to view research as providing **information**. 'Information is a key input into the making of policy and social science (research) has become a major supplier of information' (Weiss 1980). More particularly, research has been seen to provide new and better information. Another critical attribute of research relates to what might broadly be defined as **research skills and attitudes**. Here the contribution of research is not so much a particular set of findings but an approach, a way of doing things or of assessing alternative sources of information. Thirdly, the research system provides **appropriately educated people**. As Mr Dawkins, the former Federal Minister for Employment, Education and Training has said: 'Australia's educational institutions make perhaps their most important contribution to our research effort through the provision of skilled personnel'. We argue therefore, that in terms of this project we should also define research in terms of its attributes: in particular, information; research skills and attitudes; and appropriately educated people (Dawkins 1989).

Research and the publication of research results

The ABS definition of research (R&D) characterises R&D as 'creative **work** (our emphasis) undertaken ..... to increase the stock of knowledge'. In the course of the study referred to above, it was found that there was misunderstanding here; in particular, a widespread tendency to limit research to publications. In the report of that study we argued that 'reporting and accessibility of research is to be distinguished from the research itself.' It is considered that this distinction should be maintained for this project, including for assembling the data base of VET research: primacy is placed on research studies.

A related point is that our attention is given to the performers of research rather than to funders.

1.2 The Scope of the Areas of Decision Making and Action Proposed by ANTA RAC

Policy and planning

Policy involves decisions to determine the broad parameters of a given functional area of government. Generally, policy decisions reflect the elected government's priorities and broad political considerations have a particular influence at this level. Policy decisions are about establishing the overall legislative and organisational framework in a given functional area (in this case, vocational education and training), determining the major programs and the level of resources available to support the functional area.

Planning decisions are directed towards determining the major program elements and the allocation of resources among these elements, within the overall legislative, organisational and budgetary framework which reflects policy. Planning decisions focus on establishing the parameters (including financial and human resources) and organisational structures to support the implementation of major programs having regard to effectiveness and efficiency criteria but also, often, political considerations.

The locus of policy and planning decisions primarily is at the level of national and state and territory governments, within Ministerial offices and departments and agencies; but may also be at the level of individual providers, particularly where systems are more devolved or the degree of devolution is changing.

Practice and performance

Decision making and actions relating to practice and performance are concerned primarily with the delivery of services at the local level: the provision of vocational education and training by individual providers to trainees and industry. Policy and planning made operational contributes to practice and performance. Decisions and actions to achieve the most effective and efficient use of resources, once policy has been adopted, program elements have been determined and resources have been allocated, constitute practice and performance. The loci of these decisions are at the individual provider level and in operational areas of departments and agencies, the more so, the more centralised the system.

Community relations

Decision making and actions relating to policy and planning, and practice and performance generally are focused at different levels within the VET system. In contrast, community relations are concerned with the interactions between the wider economic, political and societal systems and VET. These interactions will be multi-faceted. Relations may occur at all levels – national, state and territory, regional, locally and between individuals; may be conducted through formally constituted channels or informally; and may be structured or *ad hoc*.

1.3 'Impact' of Research

The terms of reference for this consultancy focus on the 'impact' of research in VET. What constitutes 'impact' or use of research?

The concept of 'impact' of research on decision making and action has a number of aspects. In relation to the impact or 'use' of research findings, Weiss (1980) has commented that 'some limit the definition of use to the adoption of the explicit recommendations of a single study. At the other extreme, some people discuss their use of research in terms of sensitivity to [social science] perspectives'. In a more recent article, Weiss (1986) concludes that it often takes time and patience and multiple messages conveyed through multiple channels before social science has an impact.

In fact, as noted in our submission to ANTA RAC, the impact of research can be indirect as well as direct, minor individually but major in combination, additive as well as separate. Indirect and additive effects could amount eventually to a very significant impact, even though it could not be identified with any one study.

A distinction can also be drawn between the use of research in making specific decisions and their potentially more general influence – 'ideas in good currency'. The argument here is that impact of research findings, if impact implies leading to concrete identifiable action, is too restrictive. This is for two main reasons. First, it is too simplistic in its view of decision making and of the role which research may have in it. Secondly, interest could centre on decisions **not** to act, as well as on decisions to act. To resolve **not** to act is as legitimate an outcome of decision making processes as to resolve to act.

Also, the 'impact' of research outputs in decision making includes the individuals who participate in the process. It involves their education and training, their research skills and attitudes. Nevertheless, it should be noted that, just as the input of research based information into the decision making process is only one of a number of information sources, so too do decision makers draw upon their experience, judgment and other personal attributes, as well as on their education and training, their research skills and attitudes, in making decisions.

1.4 Vocational Education and Training

There is no common or agreed definition of 'vocational education and training' and the boundaries between the VET sector and other education and training sectors are blurred.

We have adopted the use of the term as commonly used and understood which is: vocational education, for the purpose of this project, is defined as all formal post-school education which prepares students for (or further develops their skills in) a specific vocation or for work generally, up to and including the level of paraprofessional

occupations.[3] 'Training' has been taken to include both on-the-job and off-the-job training to a similar level.[4]

2. SCOPE OF PROJECT

2.1 Boundaries of VET Research

The project is concerned with the impact of research in VET. Research studies which focus specifically on VET and aspects of it are clearly within the scope of the research project.

There are also studies which focus on issues which relate primarily to other sectors, but where links or applications to VET are also established. The impacts of these studies are also included. However, there are some wider studies whose findings could have implications for VET, but which do not draw out these implications. Studies in these categories generally are **not** included.

2.2 Geographical Coverage of Research

In terms of coverage, it is proposed that the project includes:

- work carried out in Australia on Australian VET issues;
- work carried out in Australia on wider or theoretical issues or both where links are drawn with VET; and
- work on VET originating overseas which includes Australian coverage or is directly relevant.

Given the purposes of the consultancy, no significance is attached to the particular state or territory where the research was performed. However, we do take account of the particular organisation in which the research is performed.

2.3 Research Time Frame

The time frame in which studies will be considered eligible for inclusion in the inventory is necessarily arbitrary, at least in reference to its commencement. We propose that the starting date be 1987. There have been significant changes in vocational education and training since the late 1980s (collectively known as the training reform agenda) and we would propose that studies commenced since the ACTU/Trade Development Council report *Australia Reconstructed* (1987), which had a major influence on the development of the training reform agenda, be included.

---

[3] This definition includes literacy and basic education programs, as they also prepare students for work generally.

[4] This definition is consistent with that used in McDonald et al (1993).

2.4 Disciplinary Approaches

The literature indicates that there are various approaches to the analysis of 'impact' of research. To the extent that researchers adopt an approach based on a particular academic discipline it can influence the problems identified as important, the key questions posed and the techniques adopted to investigate them. These differences in approach are recognised and will be explored as part of the study.

3. RESEARCH AND DECISION MAKING AND ACTION PERSPECTIVES

The relationships between decision making and action on the one hand and research on the other, can be considered from two broad perspectives: from the perspective of research or from the perspective of decision making. Our earlier study indicated that the research perspective can narrow the focus of the investigator, so that the impact of research is overstated (the 'key hole' problem): such studies tend to focus on the research process and the research outcomes and to underestimate the complexity of the decision making process (particularly in government).

The same study concluded that, from the perspectives of decision making and action, research is only one source of information and information from all sources is only one of a number of possible inputs into these processes. Of course, adoption of this perspective is not intended to imply any denigration of research's other important functions or that research should be subservient to decision making or action. Research has important objectives other than serving policy, especially if the latter is conceived as narrowly instrumental and short-term. It may well be that on occasion researchers can best contribute to the development of future policy by presenting challenging and varied points of view.

Generally, the perspective of decision making and action is the primary focus in this project, including our quantitative studies. However, the project design allows for the other perspective to be advanced, where relevant; and the symposium will provide an opportunity to assess the relative appropriateness of the perspective we propose to adopt.

REFERENCES

Australian Bureau of Statistics 1993. *Australian Standard Research Classification*, Catalogue No. 1297.0, Canberra.

Australian Council of Trade Unions/Trade Development Council 1987. *Australia Reconstructed*, Australian Government Publishing Service, Canberra.

Dawkins, J.S. (Minister for Employment, Education and Training) 1989. *Research for Australia: Higher Education's Contribution*, AGPS, Canberra, p.36.

McDonald, R., Hayton, G., Gonczi, A. and Hager, P. 1993. *No Small Change: Proposals for a Research and Development Strategy for Vocational Education and Training in Australia*, VEETAC, Canberra.

National Centre for Vocational Education Research 1994. *Selected Vocational Education and Training Statistics*, Adelaide, p.1.

Selby Smith, C., Davis, D., Fletcher, A., Fox, C., Ridoutt, L. and Selby Smith, J. 1992a. *Inventory of Health Labour Force Research Studies in Australia 1980-1991*, AGPS, Canberra.

Selby Smith, C., Davis, D., Fletcher, A., Fox, C., Ridoutt, L. and Selby Smith, J. 1992b. *National Health Labour Force Research Program: Report to Australian Health Ministers' Advisory Council*, February 1992, 2 Vols. (Volume 1: *Inventory of Health Labour Force*, Volume 2: *Relationships Between the Public Policy Process and Research*), Graduate School of Management, Monash University, Melbourne.

Weiss, C.H. with Bucuvalas, M.J. 1980. *Social Science Research and Decision-Making*, Columbia University Press, New York.

Weiss, C.H. 1986. 'The Circuitry of Enlightenment', *Knowledge: Creation, Diffusion, Utilisation*, 8(2), 274-281, December.

Appendix 2

Symposium Program, 19 - 20 February 1997, Melbourne

Wednesday 19 February

8.45 a.m.	Registration	
9.00 a.m.	Introductory Remarks:	Chris Selby Smith (CEET)
9.10 - 11.00 a.m.	**SESSION 1. USERS OF RESEARCH:** Use of Research at State/Territory and National Levels in VET Policy and Planning.	
	Chair: Nigel Smart (OTFE)	
	Presenters:	
	• Perce Butterworth (NSW Department of Training and Education Coordination)	
	• Gregor Ramsey (TASA; former Chair, ANTA RAC)	
	• Kim Bannikoff (ANTA)[1]	
	• Robert Bluer (Consultant; former Counsellor, NBEET)	
	Discussion	
11.00 - 11.30 a.m.	Morning Tea	
11.30 a.m.-1.00 p.m.	**SESSION 2. USERS OF RESEARCH:** Use of Research by VET Providers for Improved Practice and Performance, and Policy and Planning at Provider Level.	
	Chair: Virginia Simmons (Kangan Institute of TAFE)	
	Presenters:	
	• Brian Jones (Sydney Institute of Technology)	
	• Geoff Creek (Murrumbidgee College of Agriculture)	
	• Rod McDonald (RCVET)	
	• Brian Conroy (Victorian Employers' Chamber of Commerce and Industry)	
	Discussion	
1.00 - 2.00 p.m.	Lunch	

[1] In the event Kim Bannikoff was unable to attend; his paper was presented by Ms. Kareena Arthy from ANTA.

2.00 - 3.30 p.m. **SESSION 3. RESEARCH AND RESEARCHERS' PERSPECTIVES:**
From Viewpoint of VET Research Institutions

Chair: John Owen (Centre for Program Evaluation, University of Melbourne)

Presenters:

- Chris Robinson (NCVER)
- Geof Hawke (RCVET)
- Gerald Burke (CEET)
- John Ainley (ACER)

Discussion

3.30 - 4.00 p.m. Afternoon Tea

4.00 - 5.30 p.m. **SESSION 4. RESEARCH AND RESEARCHERS' PERSPECTIVES:**
From Viewpoint of Other Sources of Research

Chair: Robert Bluer (Consultant, former Counsellor, NBEET)

Presenters:

- The Formal Inquiry Process: Barry McGaw (ACER)[2]
- Expert Advisers: Bruce Chapman (Centre for Economic Policy Research, ANU)
- Between VET and the Disciplines: Terri Seddon (Faculty of Education, Monash University)
- Private Consultants: Fran Thorn (KPMG)

Thursday 20 February

9.00 - 10.30 a.m. **SESSION 5. COMMUNITY RELATIONS:**
Researchers' Contribution to Facilitating Interactions Between Wider Economic, Political and Societal Systems and VET

Chair: David Corbett (Visiting Fellow, Centre for Public Policy, University of Melbourne)

Presenters:

- Steve Balzary, Australian Chamber of Commerce and Industry (ACCI)
- Rex Hewett (Australian Education Union)
- Jane Carnegie

---

[2] In the event Professor McGaw was unable to attend. He sent a paper. Some additional comments were made by Don Anderson.

- Shirley Randell (formerly CEO, City of Whitehorse and Director, Council of Adult Education, Melbourne)

10.30 - 11.00 a.m. *Morning Tea*

11.00 a.m.-12.30 p.m. **SESSION 6: RESEARCH, DECISION MAKING AND ACTION IN OTHER FUNCTIONAL AREAS OF GOVERNMENT, AND INTERNATIONALLY:**

Chair: Rod McDonald (RCVET)

Presentations:

- Education: Don Anderson (Centre for Continuing Education, ANU)
- Health: Chris Selby Smith (CEET)
- The New Zealand Experience: Peter Winsley (N.Z. Foundation for Research, Science and Technology, Wellington)
- A U.S. Perspective: Russell Rumberger (University of California, Santa Barbara)

12.30 - 1.30 p.m. Lunch

1.30 - 3.00 p.m. ***SESSION 7: SYNDICATES*** [3]

3.00 - 3.15 p.m. *Afternoon Tea*

3.15 - 4.15 p.m. ***SESSION 8: PLENARY SESSION***
Including report back from syndicates

Chair: Chris Selby Smith (CEET)

[3] In the event this was combined with the plenary discussion.

Appendix 3

Symposium Findings[1]

"In the tender accepted by the funding body the research team stated that 'we know from studies of the use and impact of research both within education and in similar areas that the relationship between research and its outcomes is almost always complex and not easily discerned ... [and that] ... it is important to note that we do not expect to detect easily the impact of particular pieces of research'. The research question, as initially specified, would seem to imply an uncomplicated, linear relationship between research and decision-making. In fact, the relationship cannot be so simply described: the symposium presentations and discussions confirmed that the relationships are complex.

The symposium advanced the research team's thinking[2] *on 'impact' issues in the specific context of VET in a number of important respects, thereby identifying the elements to be highlighted in responding to the research question.*

On research

- *The accumulative nature of the research enterprises is stressed. Much research does not stand on its own as a piece of work, but adds to that which existed before as well as drawing upon it. This accumulating body of knowledge contributes in decision-making to the creation of a climate of opinion and the development of a set of ideas. Individual research studies are used and can have influence, but examples may not be typical, so that the value of research cannot be judged by them alone.*
- *Research, including on VET matters, is diverse and includes many approaches. The motivation for undertaking research studies varies, and it can be carried out in a number of locations. These different locations have their own history and cultures and their own incentives and reward structures. Each location tends to specialise in undertaking different types of research and to produce different combinations of research outputs.*
- *Many different disciplinary perspectives are employed. To the extent that researchers adopt an approach based on a particular discipline it has significant implications for the key questions posed, the techniques adopted, the way the results are reported, and the audiences to which the results are communicated.*
- To view research as the servant of decision-making is incomplete, especially if research is conceived as narrowly instrumental and short term. Research has other important societal purposes.

On VET decision-making

- In Australia, different decision-making settings can incorporate research very differently. Most key VET policy discussions occur through the 'pragmatic

---

[1] This Appendix reproduces section 6 of chapter 3 in C. Selby Smith, et. al., *Research and VET Decision-Making*, National Centre for Vocational Education Research, Adelaide, 1998.

[2] Beyond that set out in the tender document and in the background paper.

negotiated political approach'; consequently, systematic use of research and full public consultation have played a relatively small role.

- Policy-making in VET is mediated through complex structures and arrangements, the policy domain is contested, and the whole is complicated by an apparent quickening in the rate of change. Together, these factors serve to limit the use of research.
- Generally, there is not a strong research culture in VET organisations and among VET decision-makers.
- Whether research is used or has influence may not be recognised among those responsible for framing decisions; research is not always visible to decision-makers.
- It is often the community's call for change, rather than direct research evidence, that produces change in policy or practice. This call (which may be referred to as 'clamour') can both serve to initiate research and be driven by it. In these circumstances, the impact of research is mediated through community activity and the political process. The media can play an important part in these processes.
- Training has become more closely linked with other areas of public policy in recent years. Many of the main drivers for change and reform originate outside VET and have strong links with research in these areas. Research on issues outside VET may bear importantly on VET on occasion.

On impact

- The ways in which research can have impact are more wide-ranging than might appear from the original formulation of the research question. The symposium discussions suggest that 'impact' incorporates two elements: 'use' and 'influence'. 'Use' refers to whether the research serves a particular purpose. 'Influence' relates more closely to whether the research has had an effect on decision-making; that is, whether it made a difference. 'Use' in turn, can have several meanings depending upon the decision-making setting including: to solve a problem; to justify a prior decision; as a weapon in a political debate; and to improve conceptual understanding.

On linkages

- The linkages between research and decision-making systems in VET are 'weak'.
- The tendency has been to focus on 'dissemination' (narrowly defined) rather than linkages. Dissemination is one form of linkage, albeit one which is given particular emphasis in the VET area. This emphasis may reflect a lack of understanding of the importance of linkages; or the absence of an otherwise strong web of linkages; or the uncritical view of dissemination as the final phase in the conduct of a research project (or all three).
- To focus on linkages is to be concerned with facilitating the establishment of multiple areas of collaboration between researchers and users (and other groups), given the multiple pathways through which research can influence policy and practice.
- The web of linkages includes both formal and informal arrangements.

- The relatively weak network of effective linkages undermines the potential impact of research on VET decision-making. Enduring linkages are based on the sustained mutual esteem and understanding of the potential contribution of each party - and where those linkages emphasise collaboration for the larger good of the VET system as a whole.

On community relations

- The linkages between VET and the wider community (for example, the business community, the union movement, local government and the ACE sector) are complicated. Some communities are part of the VET system in that they are among the organisations whose incentive structures, activities and interactions determine the levels, patterns and quality of training delivered in Australia; yet their main focus is beyond VET. They are at once part of the VET system but separate from it."

MONASH UNIVERSITY • ACER

CENTRE FOR THE ECONOMICS OF EDUCATION AND TRAINING

ISBN 1 876496 00 2

172